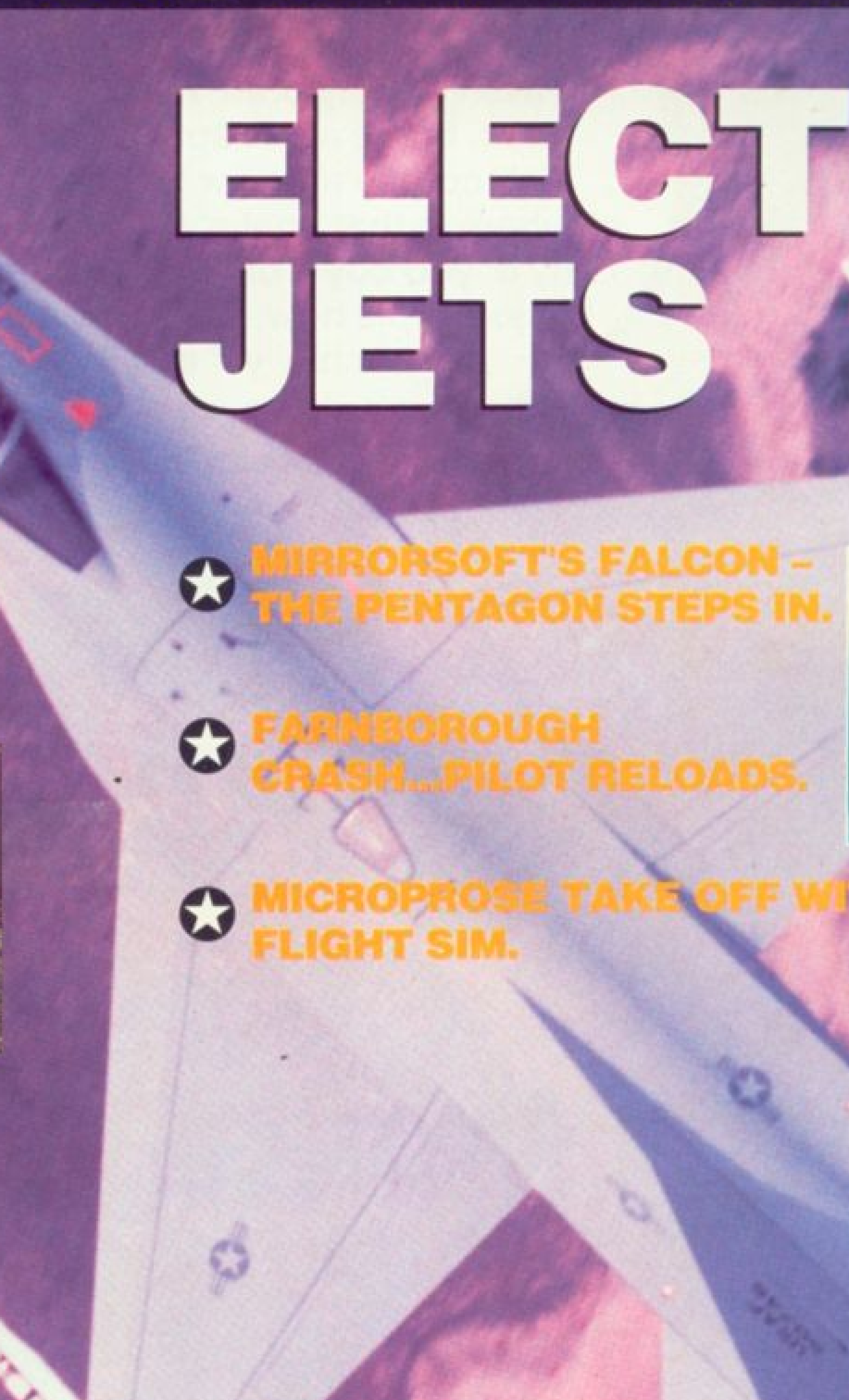
Atari ST
Amiga
CBM 64/128
Spectrum
Amstrad
IBM + more

ISSUE 14 • NOVEMBER 1988 • £1.50

ACE

ADVANCED • COMPUTER • ENTERTAINMENT



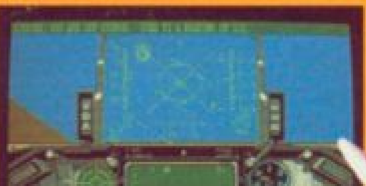
ELECTRIC JETS

- MIRRORSOFT'S FALCON – THE PENTAGON STEPS IN.
- FARNBOROUGH CRASH...PILOT RELOADS.
- MICROPROSE TAKE OFF WITH COIN-OP FLIGHT SIM.

AUTUMN ACTION

HEROES OF THE LANCE

EGA FALCON

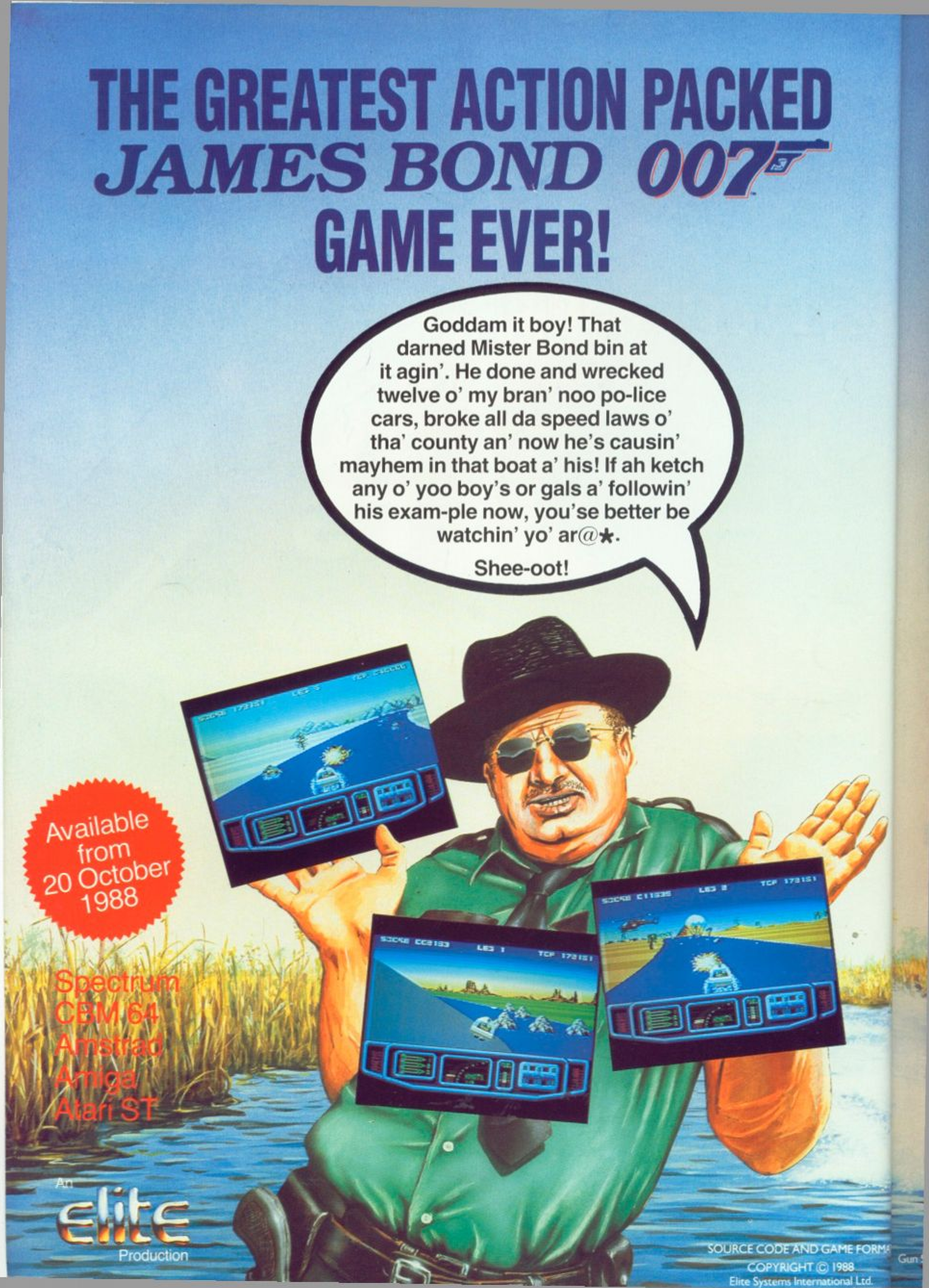


ELITE ON THE ST

Attack
Defend
Party attack
Use an item
Select an option
Dark Gnome
Character
Ironpants

ROLE PLAYING GAMES

TRICK...OR TREAT?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JAMES BOND 007
GAME EVER!
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Available from 20 October 1988
Spectrum
CBM 64
Amstrad
Amiga
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IAN FLEMING'S

JAMES BOND 007

in

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Ferry House, Lacy Road, Putney SW15 01-780 2224

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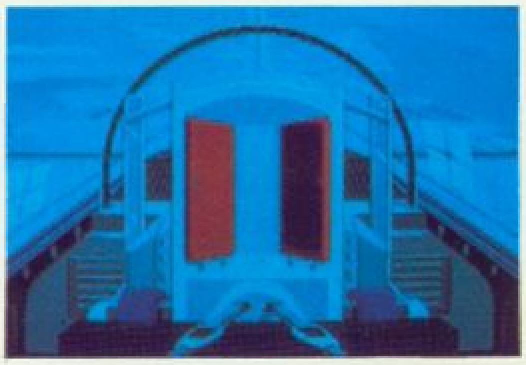
ACE

SPECIALS

31 High Fliers

Ever fancied a trip on a real state-of-the-art **military flight sim**? Andy Wilton takes to the **silicon skies**, asks just how close a game like *Interceptor* can get to the real thing, and reports on Mirrorsoft's *Falcon* – recently **adopted by the Pentagon.**



Falcon: the Pentagon steps in. See pages 31-33.

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76 Microprose Takes Off

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Major Bill: flying off into a 4096-colour sunset.

37 Games Evolution

Game ideas are born, grow old, and die just like everything else. They also **mate**, have children, and **raise families**. ACE goes back in time and traces the **evolution** of **computer entertainment.**

81 Here's One I Made Earlier

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26 Join The Professionals

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18 Previews

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107 Letters

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146 The Blitter End

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SIGHT...

21 Making A Monster

Brian Larkman puts together a **monster** on his Amiga and prints it out, using *Deluxe Photolab* – plus readers' queries in Pixel Post and a report on the Amiga Centre, Scotland.

THE ACE CARD

Win an Atari ST!

By now EVERYONE should know that an ACE card is your passport to sharing in free gifts worth hundreds of £s every month. Find out on page 14 how to get your own card, while if you've already got one, check Random Access to see if you're one of the lucky winners.

AND SOUND...

95 Affordable Excellence

The price of sophisticated music hardware is tumbling down. Mark Jenkins looks at two new products that give you hot sounds at cool prices.

97 Panel of Experts

Mark Jenkins puts readers onto the right MIDI track...

GAMEPLAY

43 Screen Test

Page 44: *Heroes of the Lance* – following in *Dungeon Master's* footsteps...or striking out on its own?

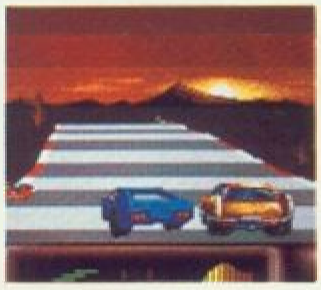
Can *Heroes of the Lance*, US Gold/SSI's *Dungeons and Dragons* licence, successfully combine role-playing and arcade action? The ACE team checks out the latest **red-hot releases** for your machine.

84 Arcade Ace

Konami's *Devastators* – *Rambo*-style shoot-em-ups get the 3D treatment...plus a host of newly-released **coin-op capers.**

111 Tricks 'n' Tactics

If you can't win, **cheat!** Maps for *Draconus* and *Marauder*, plus great tips and pokes for *Overlander, Arkanoid II, Captain Blood, Alien Syndrome* and many more.



***Overlander:* tips galore through to level 5.**

89 Adventures

The Pilgrim takes an in-depth look at *Ultima V* in a two-page player's guide, and reviews Ingrid's Back – Level 9's latest claim to fame...or infamy.

BUY LINES

13 Get It Taped

What a prize! ACE and Activision are giving you the chance to **walk away** with Amstrad's latest home studio recording unit absolutely free. Grab a pen, turn the page, and **make it into vinyl...**

Amstrad's Studio 100 - will it fall into your lap next month?

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Up to £4 off a **single game** – and every one specially selected for you by the Ace Team. **No turkeys here,** just great discounts, rapid delivery, and reliable, friendly service. Aye aye, sir!

103 Subscription

Here's the deal. You send us your subscription fee and we guarantee you regular delivery of Britain's **most exciting games magazine** PLUS the chance to **recover your whole subscription charge** by ordering US Gold games at **half price.** Go for it!

ACE PINK PAGES

115 Buyers' Guide

If you buy games, **stop right here.** The Great ACE Guide to Rave-Rated Radical Recommended Recreactional Software is all you need to pinpoint the games you just HAVE to have. Complete with ratings and **mini-reviews** for each title.

124 Upgrade Guide

The 16-bit revolution can cause problems if you want to upgrade – just which machine should you go for? Check out the facts with the **nation's definitive techno-tables,** designed to put you in the picture and save tears 'n' tantrums when your new toy turns out to be a turkey.

127 Random Access

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141 Readers' Pages

Quite simply, **the business.** Your business. Mini-advertisements, helpline offers, announcements, pen-pals, games and hardware for sale, and other trivia. Clock these pages, and let your **pinkies** do the walking.

SOFT AND HARD

We've become accustomed to seeing state-of-the-art software following hot on the heels of state-of-the-art hardware. Jack Tramiel produces the Atari ST and suddenly a host of 16-bit stunners start hitting the charts; Commodore produce the Amiga and we get *Interceptor;* Sir Clive gives us the Spectrum, and we get *Atic Atac*...and so on, and so on...

This state of affairs has gone on for so long that it is now a universally ackowledged law that you do not release a new computer unless you are sure it will attract software support.

But what about the other way round? Supposing you had a game so hot that there wasn't a computer you could run it on, except possibly a mainframe? It just doesn't seem feasible that software development could drive hardware development. Could this ever happen?

It already has. Inside this issue, you'll discover how Microprose set out to write a military-spec flight sim, but couldn't find a computer to run it on. Even when we showed them the specs for the Cambridge Flare machine (see issue 11) their reaction wasn't enthusiastic. 'It's just too slow to do the things we want to accomplish,' they moaned. Now they're planning to solve the problems themselves...by producing their own games mega-machine. Find out more on page 76.

This raises some interesting possibilities. A long time ago, a lot of people paid a lot of money for little games consoles that were dedicated to a single range of games (usually tennis). Perhaps in a couple of years, we'll see dedicated hardware units selling at around £70 each and developed purely in order to play the best possible version of the best possible game, with future upgrades available on smart cards.

The state-of-the-art *F19 Stealth Fighter* console and the ultimate *Ultima* machine may not be so far away after all...

The ACE Team

Future Publishing Ltd, 4 Queen Street, BATH BA1 1EJ Tel 0225 446034

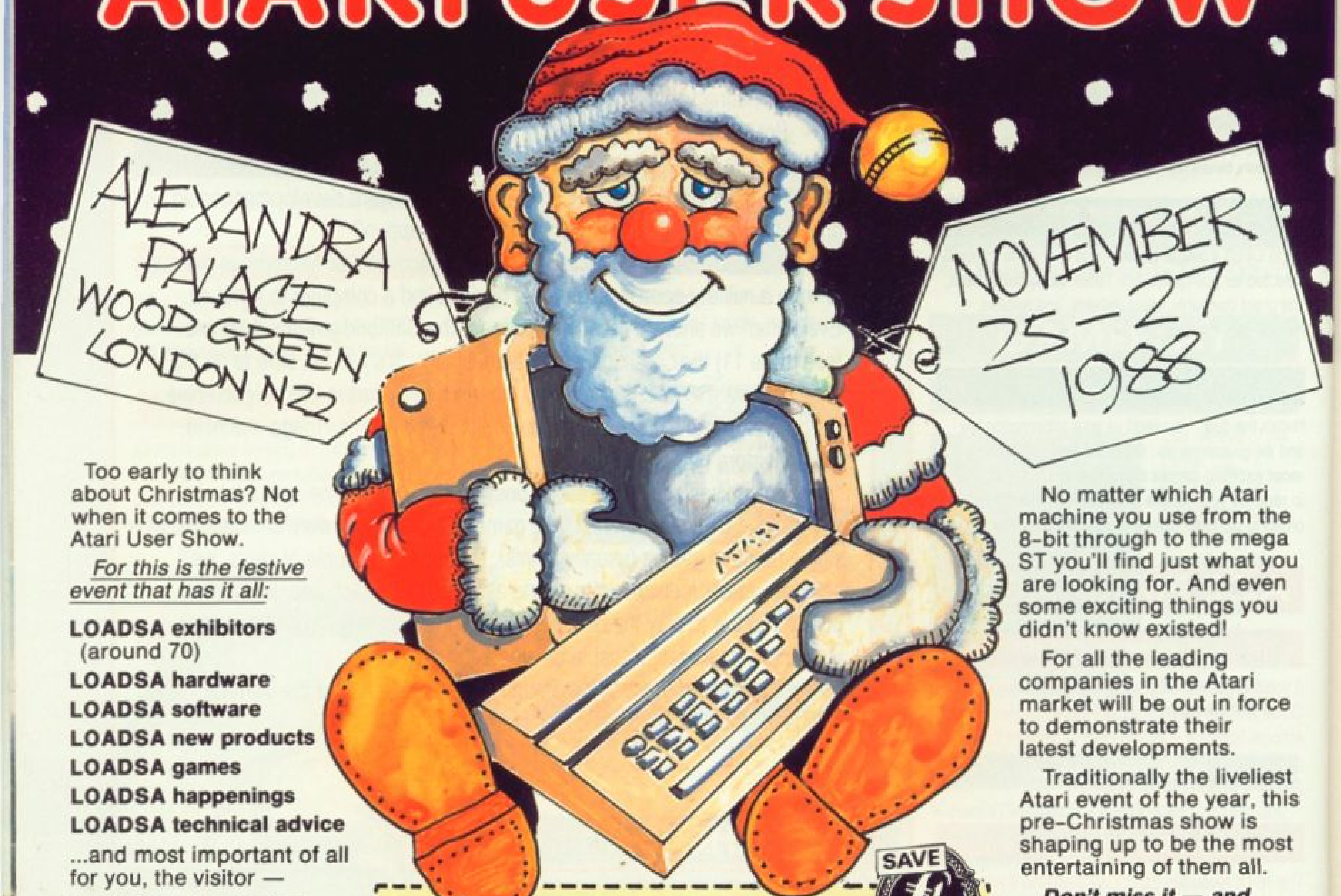
Fax 0225 446019, Telecom Gold 84:TXT152

Editor Steve Cooke **Reviews Editor** Bob Wade **Features Editor** Andy Wilton
Production Editor Rod Lawton **Staff Writer** Andy Smith
Consultant Editors Mark Jenkins (Music and Midi) Brian Larkman (Graphics)
Art Editor Trevor Gilham **Additional Design** Angela Neal
Advertisement Manager Jonathan Beales **Advertising Sales Executive** Jennie Evans
Publisher Chris Anderson

SUBSCRIPTIONS Avon Direct Mail, PO Box 1, Portishead, Bristol BF20 9EG, 0272 842487 • **SPECIAL OFFERS** (Christine Stacey) **The Old Barn, Somerton, Somerset, TA11 7PY,** 0458 74011 • **COLOUR ORIGINATION** Wessex Reproduction, 325a Wells Road, Bristol BS4 2PG • **DISTRIBUTION** SM Distribution, 6 Leigham Court Road, Streatham, LondonSW16 8DX, 01-274 8611/5 • **PRINTING** Chase Web Offset, Plymouth • © **FUTURE PUBLISHING LTD 1988** • No part of this publication may be reproduced in any form without our permission.

CHRISTMAS JUST WOULDN'T BE CHRISTMAS WITHOUT THE

ATARI USER SHOW



Too early to think about Christmas? Not when it comes to the Atari User Show.

For this is the festive event that has it all:

LOADSA exhibitors (around 70)
LOADSA hardware
LOADSA software
LOADSA new products
LOADSA games
LOADSA happenings
LOADSA technical advice

...and most important of all for you, the visitor —

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With hundreds of special show offers to choose from, here's one place you can do your Christmas shopping and end up in pocket.

You can even save £1 a head before you get there by using this advanced ticket form.

If you enjoy computing with Atari, you'll be thrilled with the Atari User Show!

SHOW HOURS

FRI–SAT 10am - 6pm
SUN 10am - 4pm

No matter which Atari machine you use from the 8-bit through to the mega ST you'll find just what you are looking for. And even some exciting things you didn't know existed!

For all the leading companies in the Atari market will be out in force to demonstrate their latest developments.

Traditionally the liveliest Atari event of the year, this pre-Christmas show is shaping up to be the most entertaining of them all.

Don't miss it — and make sure YOU enjoy a Merry Christmas!

How To Get There

Alexandra Palace is so easy to get to by car, rail, underground or bus. It has its own British Rail station, just nine minutes away from King's Cross, and there's a free bus service shuttling between the station and show every 10 minutes.

If you're travelling by road, the show is only 15 minutes away from Junction 25 on the M25. Car parking is free.

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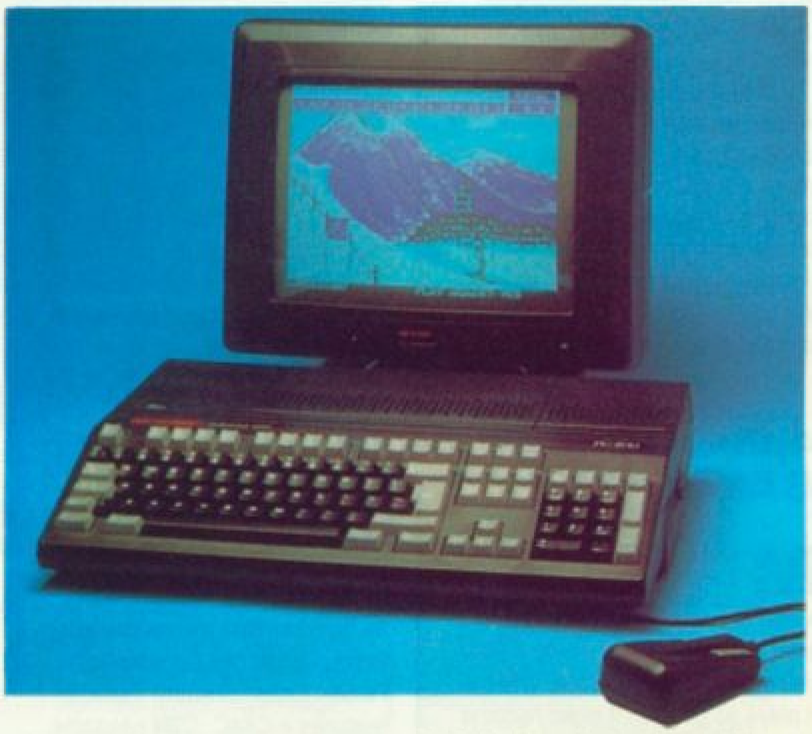
DATABASE EXHIBITIONS A591

AMSTRAD PUZZLE

■ The new Sinclair PC200 is here at last. We're excited. Or are we? ACE takes a critical look at Amstrad's latest offering to gamesters...



Funky music, coloured lights and a slick film show accompanied Amstrad's pre-PC Show announcement of a new modem, three new PC's, and a networking system. Oops! We almost forgot – there's also this little number they're launching under the Sinclair brand name – the Sinclair Professional PC200.

This ather strange beast has an Intel 8086, 16-bit chip running at 8 Mhz. It comes complete with 512 Kb of RAM, an integrated display adapter that will allow you to plug it into your television set, parallel and serial ports. An enhanced AT style keyboard with 102 keys and a single 3.5" 720 Kb disk drive. Two full sized expansion slots, a speaker with volume control, a mouse and an analog joystick port. All the machines run under MS-DOS 3.3 and come with GW Basic and Gem 3 as the bundled software. Overall the machine looks vaguely like a matt black Amiga or ST but otherwise it bears no similarity whatsoever.

You have the option of two different monitors, or none. The first is a 12" monochrome that displays 80 columns by 25 lines while the second is a 14" colour CGA with the same resolution capable of displaying 16 colours at any one time.

The price ranges from £299 to £499, excluding V.A.T. The entry level machine is monitor-less and includes just the basic specification. For an extra 100 you get the mono' monitor, a joystick, PC Organiser and four games. Finally at the top price you get a colour monitor, joystick, etc.

There are a couple of minor quibbles that need solving though before rushing out to buy one. Firstly, those expansion slots. Yes they are full sized, lengthways but not depthwise. If you fit a card you have to leave the cover permanently open and the motherboard exposed constantly. Second, what is the machine intended for? The blurb makes big claims for using it 'the serious games machine....ready to work hard.....the professional, personal, computer'. You can add a second drive, externally, or extend the RAM with expansion cards or add an 8087 co-processor but.......

The only question that remains is; Who is the machine aimed at? The answer; Only Alan Sugar knows! Especially when you can buy an ST, complete with colour monitor, for just a few dollars more.

According to the great man himself the Sinclair PC200 will be available at the beginning of October from selected branches of Comet. Obviously intended for the Christmas market.

DAMP SQUIB?

Let's face it, the PC200 isn't going to set the world alight with its CGA graphics. No matter how cleverly it's used, a low resolution cyan and magenta display is bound to look ropey in an age of STs and Amigas. Even EGA, CGA's 16 colour, high- resolution successor, is old hat. The big news now is VGA – the Video Graphics Array – and that's hardly surprising: VGA is very impressive stuff.

VGA can do anything CGA or EGA can, but that's just the start. It can display at a resolution of up to 640x480 in 16 colours, but that's not the stunner either. No, what'll really knock your socks off is VGA's 256-colour mode. That's a 320x200 screen in 256 colours from a palette of over a **quarter of a million** colours.

Amstrad themselves are already on the VGA bandwagon. In stark contrast to the PC200's puny graphics, all three models in their new upmarket PC2000 range have VGA as standard. The cheapest of these, the PC2086, costs under £1000 even with a top-of-the-line colour monitor.

Sounds expensive? Well the monitor alone accounts for over half the total price – and that makes it a bargain, believe it or not. Special monitors are needed for VGA's jazzier modes, and they don't come cheap. The official IBM equivalent of Amstrad's top monitor costs more than the PC2086 and monitor combined!

The enormous colour range of VGA would make it a natural for computer art or ray-tracing, but the memory overheads would make it too slow for some types of game. Scrolling shoot-em-ups and solid 3D would be particularly difficult. Of course, EGA screen modes still work on VGA PCs, so they'll probably be the best bet for games programmers.

GOING TO VENICE

If you thought VGA PCs were impressive with their quarter of a million colours to choose from, UK hardware firm Neutral Technology can knock that into a cocked hat. For a mere £1250, their **Venice 640** graphics card gives Apple's Macintosh II a 640x480 screen display in 16 million colours, producing almost photographic quality. The only thing that stops you using all 16 million at once is the fact that you run out of pixels! Hardware freaks should note that the colour range is the same as Rediffusion's SP-X flight simulator display featured in our Farnborough article – though obviously the Mac II doesn't have quite as much processing power!

...AND THE ATARI SOLUTION?

Jack Tramiel of Atari hasn't got any doubts about what you should be buying this Christmas – an ST, now reduced to its pre-increase price of £299. So now you've got three choices: PC200 – all the advantages of the MSDOS software base but an outdated graphics standard; the ST, which we all know and some love; and the Amiga, one hundred pounds dearer, but beloved of the Americans, Danes, Germans, and others. Yer pays yer money, and yer plays yer games...

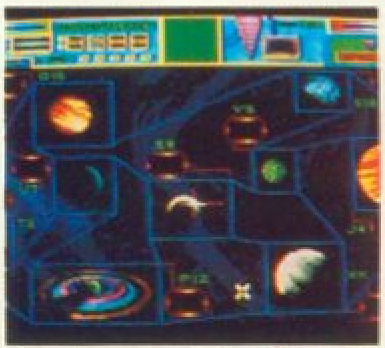
SMALL GUYS AND BIG GUYS

Anna Popkess - from another affiliated Mediagenic label, Abstract Concepts - discussing their latest product Parisian Knights. Stand by for the Pilgrim review in the near future.

A long-standing association between System 3 and Activision/Mediagenic has been officially renewed, bringing us *Last Ninja 2, Tusker, Run Out*, and *Dominator* over the next year for 'all major systems'.

Affiliation deals like this one, where System 3 produce the games and Mediagenic enable you to buy them, are becoming more and more common these days. They're good news for gamesters because they allow smaller companies with games expertise to bring us games (often good ones) that would otherwise languish and die in the small ads sections. In a world dominated by quantity, it's good to see quality being given a hand every now and then...

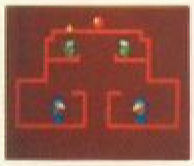
4,000 COLOUR GAME



Pioneer Plague HAMming it up on the Amiga...

Mandarin are getting all excited about *Pioneer Plague*, which uses the Amiga's Hold And Modify capability to put over 4,000 colours on screen at once. Whether it plays as good as it looks remains to be seen, but we're keeping our fingers crossed...

GO HELTER SKELTER!



We've got a great special offer for ACE readers, thanks to *Helter Skelter* publishers Audiogenic. This 856-rated game features a number of challenging screen layouts that you have to negotiate in order to stomp monsters with a bouncing ball.

Now here's a challenge for you. Using either your knowledge of the game, or our review of it in the September issue, for inspiration, design your own *Helter Skelter* screen. We'll give two pairs of Alton Towers tickets to the senders of the two most original, trickiest screens and print their entries in glorious technicolour on these pages. Go on, show us what you're made of and get a great day out into the bargain! Entries must reach us by November 5th – and don't forget to include your name and address!

AFTERBURNERS ON

Mediagenic, formerly Activision, are aiming to have two number one hits before Christmas, and with two games like *R-Type* and *Afterburner* it's hard to argue with them. Indeed Mediagenic are so excited about *Afterburner, R-Type* and *SDI* that they're running a series of TV ads in November. Mind you, you'll have to get up on Saturday mornings if you want to see it.

There was also exciting news for fans of Games Workshop, the fantasy/role playing games producers. They've signed the game rights to all GW's products, including the *Warhammer* wargames. Initially they'll be producing *Warhammer Fantasy Battle* and *Warhammer 40,000*, but not until early in 1989. It's yet more evidence of the rise of role playing games. As Colin Welland would put it, watch out the wargamers are coming.

Another interesting game on view was the ST version of the *Incredible Shrinking Sphere*. We reckoned after seeing a preview of the C64 version a couple of months back that this would be one to watch and the ST version makes it look even better.

COMMODORE PLOT THE FUTURE OF 8-BIT?

Commodore announced special 'added value' packages for the Commodore 64 at the PC Show, reinforcing feelings that 8-bit machines aren't going to lie down and die without a fight – and raising some interesting questions about the future of our old 64K friends into the bargain.

The first package is the least interesting, but still offers excellent value at £149.99 for a C64C, C2N cassette, joystick, and ten games. Called the 'Hollywood' pack, the bundle gets you *Rambo, Miami Vice, Platoon, Great Escape, Top Gun, Trivial Pursuit, Blockbusters, Bullseye, Krypton Factor*, and *Every Second Counts*. Phew...

It's the second little number that raises the questions. Called the Commodore Family Entertainment Pack, it features a C64C, C2N cassette, five games and...wait for it...a Yamaha SHS-10 keyboard. This little devil offers 3 onboard chord sequencers, 25 pre-set sounds ranging from synth to harmonica, and 25 programmable rhythms/accompaniments.

It also offers MIDI OUT, so it's going to be a sore point with many of us that Commodore haven't included a MIDI interface as well. It's also sad the keyboard doesn't have a MIDI IN, so you could get into some sequencing with the computer. You can't have everything, however, but surely an interface would have been a more useful inclusion than the personal stereo, which you can get from just about anywhere nowadays for peanuts.

Let's not be stingy, though. Considering that the Yamaha keyboard alone costs around £150 at list prices, this is an extraordinary bargain. You can almost view it as getting a computer, cassette, games, and a free keyboard.

HOLD YOUR BREATH

Much more significantly, however, you can view it as getting a keyboard, some games, a cassette, and a free computer. 8-bit machines are now very cheap to produce and, despite their tarnished appearance alongside the new 16-bit competitors, still pack a surprising amount of computing punch. By putting these units into bundles dedicated to particular applications, we could see a very exciting revival of 8-bit computing.

How about, for example, an Amstrad 6128 bundled with Art Studio, a graphics tablet, and a colour printer? Or a Spectrum 128, MIDI interface, sequencing software, and keyboard? Or - to look even further - how about Barclay's Bank buying up hundreds of thousands of C64s, packaging them with modems and software, and selling them as home banking units?

8-bit dead?? Not a bit of it. On the contrary, when prices start falling, we may see, for the very first time, a true mass market in home computer-based products. The key to success will lie in the design of the bundled software and the strength of the marketing...Hold your breath.

Starring partners - (above)Yamaha's Starmaker SHS10 keyboard and (below)the Commodore 64C.

Super X - set to make your mouth water...excessively. Thunderblade (inset) - smaller, but still beautiful.

HYDRAULIC HEAVEN

The movers and the shakers were out in force at this year's PC Show. Microprose rolled out the biggest of the lot in the form of their 14 seater Super X Prokon simulator. Once inside, people grabbed for the paper bags as they flew, biked, banked, soared, and blasted off through scenario after scenario. Definitely not to be missed if it makes another appearance...

Other software houses were shaking things up on a smaller, but just as exhilarating scale. The helicopter combat game *Thunderblade* was available in both upright and deluxe versions on the US Gold and Mastertronic/Sega stands. This provided aerial action from both overhead and behind-the-copter views.

Ocean had their own bit of moving magic in the form of a *WEC Le Mans* machine. This driving game spins around as you hurtle along the track.

Most prestigious shaker however had to be the sit-in *Afterburner* hydraulic console at the Inn on the Park, where Activision/Mediagenic had a courtesy suite. After hobnobbing with the millionaires in the lobby, you could wander in to the suite, sample some light refreshment, and then step coolly into the console and shake away the hours, unhassled by hordes of queuing aviators. Even the millionaires looked a trifle envious...

Dinamic, getting away from the rain in Spain and showering us with software in the UK.

INVASION UK

There was a stronger than ever foreign representation at Earls Court with software houses from France, Spain and Switzerland in evidence.

The French were there in force through Infogrames/Ere Informatique, Loriciels, Ubisoft and relative new boys to the UK France Image Logiciel (FIL). There won't be any games from them until 1989 but they've got an impressive list of coin-ops signed up for release including *Shinobi* from Sega, *Continental Circus* from Taito and *Gemini Wings* from Tecmo.

Spanish software house Dinamic is now releasing its own titles over here, the first of which is *Game Over II*. Other games on the way also include the follow up to *Army Moves* - *Navy Moves*. The Swiss label Linel also put in an appearance at the show for the first time, showing, amongst other things, their 16-bit adventure titles. Very nice they looked too...stand by for further details in forthcoming Pilgrim pages.

Foreign magazines were also over in force, showing just how much respect there is now for the UK games scene. French Amstrad magazines, Danish Commodore magazines, Spanish rags, and even Swedish ones turned up to gloat over our micros and report to their readers back home. One mag from Sweden sent eight representatives – one to write the story, and seven to play the games!

MEET THE BITMAP BROTHERS

■ Bob Wade catches up with two of Britain's hottest programming properties at the PC SHOW...

Eric, Stephen and Mike are the Bitmap Brothers and they've been responsible for two of the most distinctive 16-bit games in the last year - *Xenon* and *Speedball* (reviewed in this issue). We managed to tear them away from an ever-hectic programming schedule to talk to us.

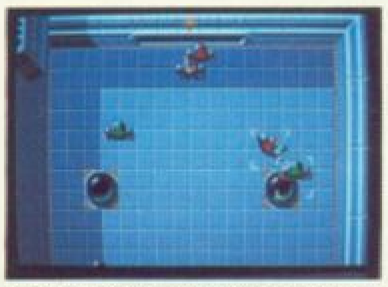
Their first project together was *Xenon* but prior to that they'd all been involved with games programming for some time. Stephen goes back the furthest, his first machine was a Mattel Intellivision and his first programming was done on a ZX81. It didn't take him long to get published either - anyone remember *Super Glooper* from MikroGen? Well that was one of Stephen's early creations. He was soon working for Psion and wrote the classic *Chequered Flag*, and also worked on *Scrabble* and *Matchpoint*. After working with the Sinclair QL for a while he moved onto the ST and does all the ST programming for their games.

Eric spent six years at art college, so it comes as no surprise to learn that he's responsible for the distinctive graphic style of *Xenon* - although he didn't do those in *Speedball* despite their similarity of style. Mike programs the other versions of the games, most of his programming experience being at Leisure Genius working on games like *Monopoly* and *Scrabble*.

Eric was responsible for coming up with the idea for *Xenon*, but initially they had trouble selling it because *Goldrunner* had just come out on the ST and nobody wanted scrolling shoot-em-ups. The attitude to *Speedball* was different, 'we wanted to get away from the proven format and do something different, but it was harder to sell. By now everybody wanted shoot-em-ups.'

They took the deal with Mirrorsoft because 'they were professionals and treated us like business people, not kids as some others had.'

As yet they aren't sure what their next project will be but we can expect to see more games from them because they're looking to take on more people. It will almost certainly be something completely different again, perhaps reflecting some of the current influences. Stephen is into role playing and all three of them got hooked on *Dungeon Master*, so maybe we'll see some RPG features - *Speedball* already has character development of a sort.



Speedball - the Bitmap Brothers prove they're not just one game wonders.

They're also heavily into Infocom games. Current favourite though is to breeze into an arcade and play pinball and fruit machines till the money runs out, and then nip to the nearest cash till. They're also into games of *Final Lap*, but don't play as many arcade games as they used to.

One weird idea they've had is a game based around the logo of the TV show Wired. 'There's just something catchy about all those balls on sticks flying around' said Stephen.

SNIPPETS...

● UP AND COMING TITLES FOR YOUR MICRO

LOMBARD/RAC RALLY SIMULATOR

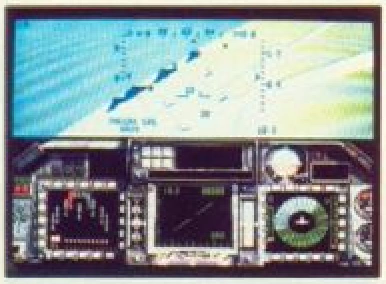
Mandarin

Atari ST	**£24.95dk**
Amiga	**£24.95dk**

(provisional prices)

This latest game from *Screaming Wings* house Red Rat is billed as a 'faithful re-enactment of the rally' it allows the player to slip behind the wheel of a 300bhp Group A Ford Sierra RS Cosworth.

There are four stages to the game: road, forest, mountains and night driving. The ST and Amiga versions will be here first, with PC and C64 versions following shortly after.



F16 COMBAT PILOT

Digital Integration

Atari ST	**£24.95dk**
IBM PC	**£24.95dk**

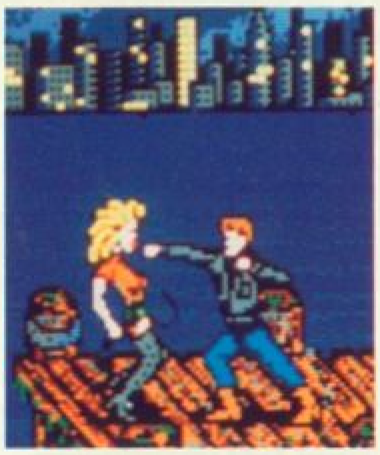
The American F16 is definitely flavour of the month at the moment as far as simulations are concerned. Every simulation house worth their salt seems to be bringing out a program that they reckon will knock the spots off the opposition. This one from DI has been a while coming, but it now looks likely to be here real soon.

MANHATTAN DEALERS

Entertainment International

Atari ST	**£19.99dk**
Amiga	**£24.99dk**
IBM PC	**£24.99dk**

Manhattan Dealers is an action-packed 3D combat game that puts you up against vicious street gangs of Bronx Skinheads and chainsaw maniacs, and Chinatown Ninjas and Samurai. If you like your games with that hard edge, watch out for it coming soon.



CBM 64/128
CBM 64/128
THE HOME COMPUTER VERSION OF THE COIN-OP CLASSIC
METROCROSS

KIXX TO KILL?

Mastertronic and Code Masters had better watch out. Kixx are a new budget label determined to grab a slice of the ever-increasing budget 8-bit market. Kixx has been formed by ex-Mastertronic employees John Mearman and Lesley Bossen, who reckon the Kixx philosophy of quality not quantity is just the thing the market needs.

While the initial releases will be culled from the U.S.Gold and Gremlin back catalogue – such as *Gauntlet* and *Metrocross* – they do plan to release some original games. The first of these looks likely to be a game called *Blackbeard,* which will be available for Spectrum, Amstrad and MSX machines. Kixx plan to release some 24 titles over the next year with approximately a third of those being original titles. All games will retail for £2.99 on cassette.

SUPER DRAGON SLAYER

Code Masters

C64	**£4.99cs**

This arcade adventure of enormous proportions is coming out on the Code Masters 'Plus' label. That means you'll get two versions of the game to play. Once you've mastered the standard version, you can try to complete the expert version, but make sure you collect enough magic to slay the dragon.

CAVEMAN UGH.LYMPICS

Electronic Arts

C64	**£14.95dk**

Caveman Ugh.Lympics brings to the computer the lost art of clubbing. It features the original games with the original atheletes. It shows Olympic events before they had lost their fun, before dinosaurs became extinct and before evolution made clubbing painful.

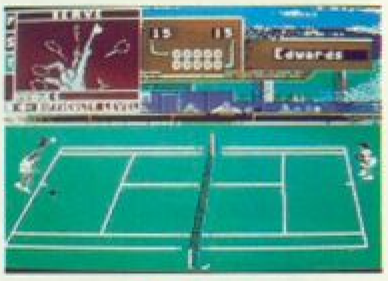
The game features some six events, so you'd better get your clubbing arm in shape now!

SERVE AND VOLLEY

Electronic Arts

C64	**£9.95cs**	**£14.95dk**
IBM PC		**£24.95dk**

Accolade are set to release some four sports simulations before Xmas. This one's a tennis sim with the emphasis on correct ball placement, timing and stroke selection. The game features three different levels of difficulty and three different court surfaces. The game features 'Strobe-O-Strobe' animation that makes the serves and hits appear very realistic. The C64 version's going to be here first with the PC version following.



GROWTH

Entertainment International

Amiga	**£14.95dk**
Atari ST	**£14.95dk**

Having penetrated the nerve centre of the evil Dreyficus, you must prevent the alien growth from spreading and causing apoplectic annihilation of the Universe. With full 360 degrees mobility you must circle the growth and blast your way to the heart before finally destroying the tumour.

Can You Stop The Russian Bear?
Red Storm Rising
AVAILABLE NOW
Based on the NO.1 best-selling book Red Storm Rising by Tom Clancy; Larry Bond co-author. Copyright 1986 by Jack Ryan Enterprises Ltd and Larry Bond. All rights reserved.

The storm has broken. MicroProse's latest title is here.

This high technology simulation of strategy and tactics is based on one of the most dramatic and detailed stories of modern warfare – Red Storm Rising, the international best-seller by Tom Clancy and his technical collaborator Larry Bond.

Working with the authors, MicroProse have brought the book's intense action and excitement to your computer screen. You are put in command of an American nuclear attack submarine at a time when the two super powers collide.

Standing between the Russian bear and global domination, you play a crucial role in the conflict. Missions take you to an astonishing variety of undersea environments, plunging you into challenging and exciting situations.

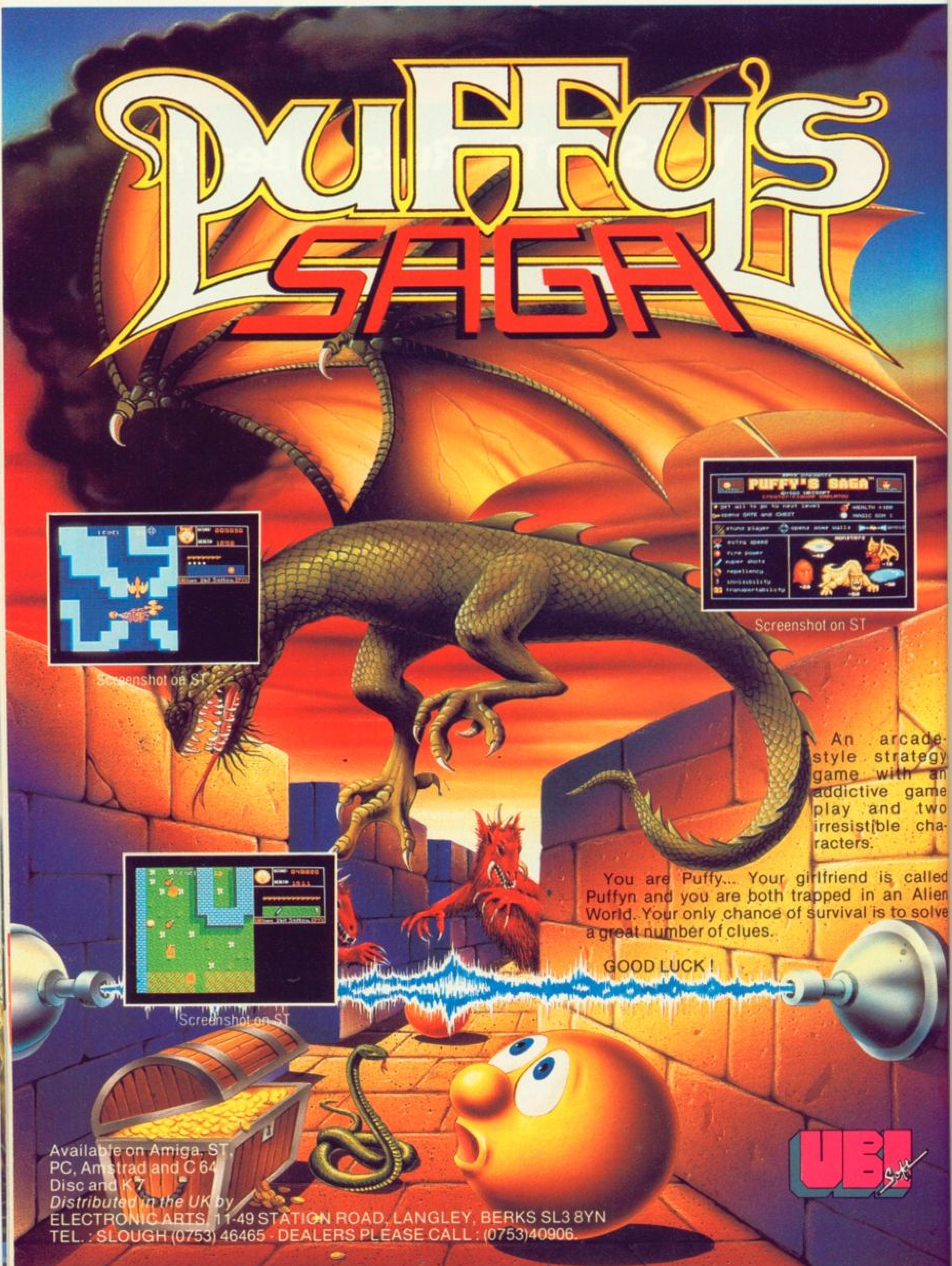
Prepare for action in this heart-pounding simulation. Available for Commodore 64/128 Cassette £14.95, Disk £19.95.

MICRO PROSE
SIMULATION • SOFTWARE

RED STORM RISING by Tom Clancy © 1986 by Jack Ryan Enterprises Ltd and Larry Bond.

Please send ________ Copies of Red Storm Rising C64 Cassette ________ Disk ________
Name (block capitals) ________ Address ________
________ Post Code ________
I enclose £ ________ including 55p P+P. Cheques payable to MicroProse Software Ltd. ________
or debit my Access/Visa card. Expiry date ________ No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

MicroProse Ltd., 2 Market Place, Tetbury, Gloucestershire GL8 8DA. UK. Tel: (0666) 54326. Tlx: 43422 MPS/UKG.



Screenshot on ST

Screenshot on ST

Screenshot on ST

An arcade-style strategy game with an addictive gameplay and two irresistible characters.

You are Puffy... Your girlfriend is called Puffyn and you are both trapped in an Alien World. Your only chance of survival is to solve a great number of clues.

GOOD LUCK !

Available on Amiga, ST,
PC, Amstrad and C 64
Disc and K 7
Distributed in the UK by
ELECTRONIC ARTS, 11-49 STATION ROAD, LANGLEY, BERKS SL3 8YN
TEL. : SLOUGH (0753) 46465 - DEALERS PLEASE CALL : (0753)40906.

SMASH HIT!

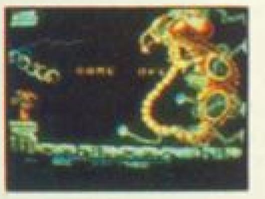
That's *R-Type* from Electric Dreams/Activision, and it's also what you could be with this tremendous prize competition...

ARE YOU READY FOR R-TYPE?

Of course you are. After all, you are the meanest, toughest gamesplayer around, aren't you? If you're not, better wimp out on this one, because Electric Dreams reckon this game is a real toughie.

It's programmed by Bob Pape, Karl Jaffey, and Dave Jolliff, who have combined their talents to bring you an even more polished program than their acclaimed *Rampage* conversion. The game presents eight stages of battle against ruthless enemies and you have to seek out power crystals to give you added weapons, strength, and protection.

R-Type's already been a smash hit in the arcades, where it has a deserved reputation as a state-of-the-art shoot-em-up with numerous playing options and original features. Electric Dreams have a great reputation themselves, so we could be looking forward to a real humdinger of a launch. *R-Type*'s hitting the shelves in Spectrum, C64, Amstrad, and ST versions – don't miss the review in next month's ACE!



***R-Type* – Hold on to your hats as this arcade hit heads for the ST.**

WHAT YOU HAVE TO DO

R-Type promises to be one of the classic arcade licenses of the year, and it's programmed by the lads who brought you *Rampage* last year. All you have to do is answer the three questions on the entry form correctly. Then fill in your name and address and pop it in the post to:

R-Type Competition, ACE Magazine, 4 Queen Street, BATH BA1 1EJ

Your entry must reach us before 6th November 1988. The first prize will be awarded to the first entry drawn at random from those entries received by the closing date above. Second prize will go to the second correct entry drawn. Get to it!

THE RULES

1. Employees of Future Publishing, Electric Dreams/Activision, or of any company involved in the sale and distribution of ACE magazine are not eligible for entry.
2. Closing date November 6th 1988.
3. The decision of the judges is final and no correspondence will be entered into.
4. Only one entry per household.
5. No purchase of ACE magazine is necessary and photocopies of the entry form are acceptable.

THE PRIZE

Hold your breath. In conjunction with Activision/Electric Dreams, we're not only giving away a stunning Amstrad Studio 100 multi-track recording studio BUT ALSO a fabulous Casio HT700 polyphonic synth with MIDI, auto-rhythms, chord sequencer, and a whole lot more!

That's all you need to explore the whole world of electronic music, home recording, demo tapes, radio air time, contracts with CBS, and life-long fame... Well, perhaps not quite all you need – you'll to have to add in a bit of inspiration as well, eh what? Still, even if you don't end up a star on-stage at Wembley, you'll have tremendous fun with this great package.

Your HT700 synth has full MIDI capability, so you can link it into your existing computer system. It also has 'programmable capability, with up to 20 user programmable presets and 10 programmable rhythms. Oh yes, and there's also a chord sequencer, pitch bend, keyboard splits/transpose, song memory, and RAM card capability. Not bad for a freebie, eh? Just make sure you get a chance of its being yours!

Amstrad's Studio 100 has revolutionised home studio recording, allowing you to record and mix up to four tracks. Not only that, but it's a complete audio system in its own right, featuring twin cassette-decks, tuner, belt-drive turntable, graphic equaliser, and even a DJ console facility. Now you can really get into the music bizz!

ENTRY FORM

NAME...

ADDRESS ....

.... TEL NO.....................

COMPUTER OWNED ....

1. Which of the following people helped program Electric Dreams' *R-Type* conversion?
(a) Bob Wade ☐
(b) Rod Cousens ☐
(c) Karl Jaffey ☐

2. Which company converted *Rampage* for home micros?.......................................

3. MIDI stands for:
(a) Musical Instrument Digital Interface ☐
(b) Melodic Interference through Distorted Information ☐
(c) Manic Improvisation using Diatomic Infrastructures ☐

WIN AN ATARI ST!

Has your ACE card come up trumps this month? There are 25 great prizes.

ATARI SC1224
ATARI

For everyone who's received a free ACE card (if not, see below on how to get one), here's another great opportunity to win prizes.

Using the **NEW** program (see **NEW PROGRAM!** box), just type in the 28 new 4-letter codes printed on this page. If the program converts one of them into your personal number, you're a winner!!

WE WANT A WINNER!

Note that we are now printing FOUR winning codes for the ACE card. If the owner of the 1ST CLAIM code hasn't claimed his prize by the closing date it goes to the owner of the 2ND CLAIM code. If he hasn't claimed his prize by then it goes to the owner of the 3RD CLAIM code...and so on. Should the 1st Claim owner claim his prize, the owners of the 2nd, 3rd and 4th claim codes automatically qualify for one of our SECOND PRIZES.

NEW PROGRAM!

In order to accomodate the **HUGE** number of entries for the ACE card competition we've had to modify the program slightly. **MAKE SURE** you type in the revised program.

LOOK AT THESE PRIZES!

ONE 1st PRIZE: *ATARI ST + COLOUR MONITOR*

1st claim **WKNE** 2nd claim **WMXH** 3rd claim **XOYQ** 4th claim **UXIH**

FOUR 2nd PRIZES: *£50 of software – chosen from the ACE Special Offer pages*

The winning codes: **YTXP** • **VTIW** • **WMME** • **VLJJ**

TEN 3rd PRIZES: *£25 of software – chosen from the ACE Special Offer pages*

The winning codes: **YHBW** • **YCYC** • **WRJC** • **UINN** • **WDGW** • **WUQT** • **ZSPY** • **XWSD** • **XHGW** • **WMRF**

TEN 4th PRIZES: *A year's free subscription to ACE magazine*

The winning codes: **VLLT** • **WKNX** • **XOFM** • **VEMX** • **ZMYQ** • **ZNWH** • **XTCY** • **YPTV** • **YNYT** • **VTEJ**

HOW TO CLAIM A PRIZE

If you are one of the winners, you may claim your prize simply by posting us your ACE card together with a note saying which prize you are claiming (and from which issue of ACE).

If your prize is for software, list carefully the software you would like from the selection printed in the ACE Reader Offer pages (104-105).

Assuming your claim is valid, we will forward your prize and return your card within 28 days (probably much sooner).

Post to: ACE CARD PRIZE CLAIM, 4 Queen Street,
Bath BA1 1EJ ***Closing date for claims November 12th, 1988***

HOW TO OBTAIN AN ACE CARD

If you missed the April issue of ACE, you may obtain an ACE card free of charge by sending us a stamped self-addressed envelope together with a signed statement saying that neither you nor anyone else in your household already owns an ACE card. Apply to
ACE CARD REQUEST, 4 Queen St, Bath BA1 1EJ
(This offer valid while stocks last).

THE DECODER PROGRAM

This short program listing will DECODE the 4-letter codes printed below next to the prizes. It turns each code into a five-digit number such as the one printed on your ACE card. All you have to do is type-in the program using the instructions for your computer printed below.

Then RUN the program. It will ask you to input each of the prize codes in turn and will then reveal on screen the winning numbers. If your number comes up, YOU CAN IMMEDIATELY CLAIM YOUR PRIZE!

If you are unable to get the program to work, a list of the winning numbers, correctly decoded, may be obtained by sending a stamped addressed envelope to:
ACE November winners list, 4 Queen Street, Bath BA1 1EJ

C64, CPC, ST, AMIGA version

```
10 FOR A=1 TO 28:INPUT "Code";B$
20 B=0:FOR C=1 TO 4:B=B*26
30 D=ASC(MID$(B$,C,1))
40 IF D>90 THEN D=D-32
50 B=B+90-D:NEXT C:PRINT "Winning
Number is";B:NEXT A
```

SPECTRUM version

```
10 FOR A=1 TO 28:INPUT "Code";B$
20 LET B=0:FOR C=1 TO 4:LET B=B*26
30 LET D=CODE B$(C TO)
40 IF D>90 THEN LET D=D-32
50 LET B=B+90-D:NEXT C:PRINT "Winning Num-
ber is";B:NEXT A
```

TYPING IN THE PROGRAM

SPECTRUM

48K: Power on, and type the Spectrum listing in as shown, pressing ENTER at the end of each line. To get the word CODE in line 30, hold down caps shift and symbol shift keys together and press the letter I key. When you've typed all five lines in correctly, press R (for RUN) followed by ENTER. Now type in the codes one at a time, pressing ENTER after each one: the program will stop after you've typed in all 25 codes.

128K: Select 128K BASIC mode from the start-up menu and type in the Spectrum listing as shown, hitting ENTER at the end of each line. Type RUN, hit the ENTER key again and type the codes in as for the 48K Spectrum above.

C64/128

Type the listing in as shown, hitting the RETURN key at the end of each line. Type RUN (Don't use the RUN/STOP key), hit RETURN and then type the codes in one after the other.

AMSTRAD CPC

Type the listing in as shown, hitting the RETURN key (6128) or the larger of the two ENTER keys (464 or 664) at the end of each line. Type RUN and hit RETURN or the large ENTER key again - don't use CONTROL and the small ENTER key here - and type the codes in one after the other.

ATARI ST

Put the LANGUAGE disk in the drive and switch the ST on. Double-click first on the drive A icon and then on the BASIC.PRG icon to boot Basic. Type EDIT and press the RETURN key. Now type the listing in, hitting RETURN after each line, and press the F10 key when you've typed all five lines in. Now type RUN, press RETURN again, and type the codes in one at a time.

AMIGA

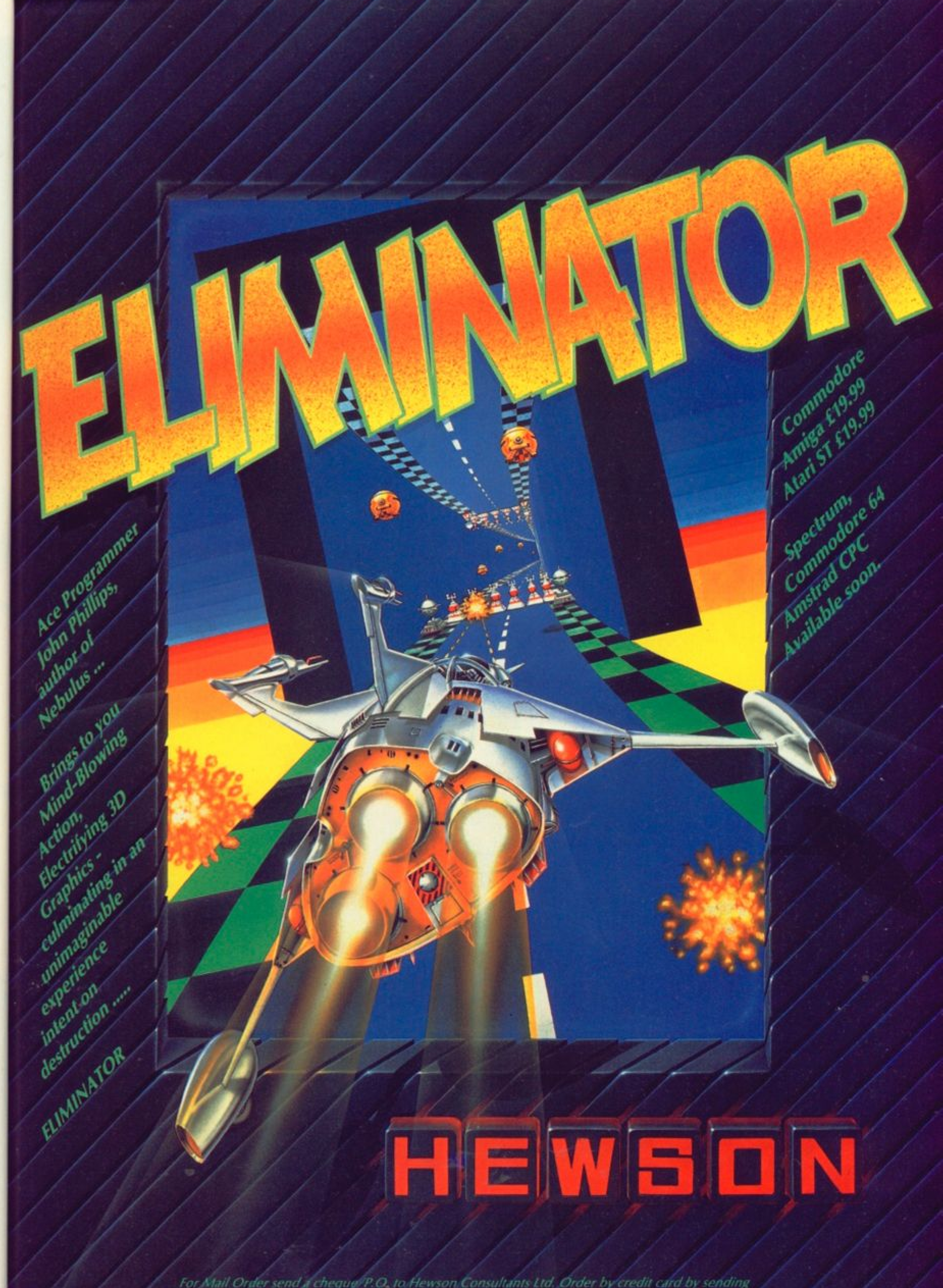
Switch on, put your 'Workbench' disk into the drive and wait for the desktop to appear. Now put your 'Amiga Extras' disk in the drive, double-click on the EXTRAS icon and then double-click on the AMIGA BASIC icon. Type the listing in as shown, hitting RETURN after each line, and then click on the BASIC (rather than the LISTING) window. Type RUN, hit RETURN and then type the codes in one at a time.

OTHER MACHINES

The 'C64, CPC etc' listing is standard MicroSoft Basic, so it ought to work on most micros. If you can't get it to work on yours, write to us for a list of winners — details of this are printed above.

RULES

1.This promotion is open to everyone with the exception of employees of Future Publishing Ltd and anyone involved in the distribution or retailing of Advanced Computer Entertainment magazine.
2.Ownership of the ACE card is limited to one per household.
3.Each four-letter code printed in the magazine corresponds to a winning 5-digit number on one of the ACE cards.
4.The codes must be correctly decoded using the program printed each month in this magazine.
5.Claims for prizes must be received by first post on the closing date at the latest. The value of any unclaimed prizes will be carried forward to future issues.
6.If, due to a production error, more than one person claims a single prize, the publishers reserve the right to divide the prize between the claimants.
7.In the event of any dispute, the decision of the publishers is final.


ELIMINATOR
Ace Programmer John Phillips, author of Nebulus ...
Brings to you Mind-Blowing Action, Electrifying 3D Graphics - culminating in an unimaginable experience intent on destruction .....
ELIMINATOR
Commodore Amiga £19.99
Atari ST £19.99
Spectrum, Commodore 64 Amstrad CPC Available soon.
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HEROES OF THE LANCE

ARCADE ACTION

HEROES OF THE LANCE marks the first computer action game that re-creates the epic battle between good and evil on the world of Krynn.
Controlling eight Companions, each with different specialised attributes and skills, guide these brave adventurers deep into the treacherous ruins of the temple XaK Tsaroth to retrieve the precious Disks of Mishakal.
As you descend into the Abyss, the Companions must defeat the hordes of monstrous Draconians in hand-to-hand combat, deal with powerful magic and survive the onslaught of attacks from giant spiders, skeletal undead and countless other terrors.
But your final obstacle makes these monstrosities innocuous by comparison. The platinum disks you seek are guarded by Khisanth, an ancient black dragon. And there is but one way to vanquish this mighty beast…
…find the key to destroy Khisanth or you are doomed to failure.

CBM 64/128

SPECTRUM
48/128K

AMSTRAD

IBM PC
& COMPATIBLES

AMIGA

ATARI ST

OFFICIAL
Advanced Dungeons&Dragons
COMPUTER PRODUCT
HEROES OF THE LANCE
TM
U.S. GOLD
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Adv
Dungeon
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COMPUTER PRODUCT
POOL OF RADIANCE
A FORGOTTEN REALMS™
Fantasy Role-Playing Epic, Vol. I
SSI
STRATEGIC SIMULATIONS, INC.

FANTASY ROLE PLAYING

Located on the northern shore of the Moonsea in the Forgotten Realms, the fabled city of Phlan had been overrun by monsters led by a mysterious leader. Your quest: discover the identity of this evil force.
Pool of Radiance adheres faithfully to the legendary Advanced Dungeons & Dragons™ fantasy role playing systems. No detail is missed including 6 player characters; *computer controlled non-player characters;* the Adventurers' Journal packed with history, maps and clues and the Translation Wheel that converts Elvish and Dwarvish writing to English. The gameplay is exhilarating and the graphics state of the art – portrait displays, 3D perspective, tactical combat display and personalised weapons selections compile to form the ultimate breakthrough in fantasy role-playing computer games.

CBM 64/128

AMIGA

IBM PC
& COMPATIBLES

ATARI ST

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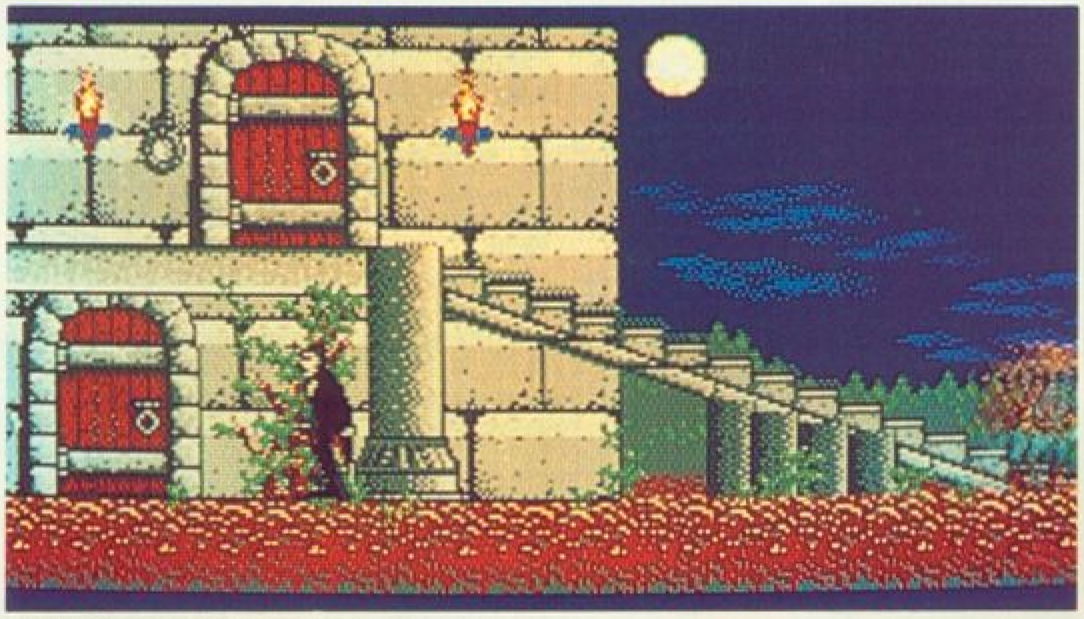


The bloodthirsty Count prepares to make another strike.

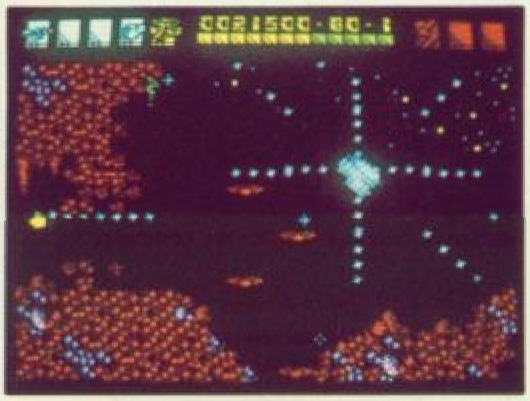
DRACULA ● UBI SOFT

As the evil Count, you're out to recover the powerful talisman stolen from you by Doctor Van Helsing. You'll need to keep doing away with people in order to feast on their life-giving blood, but watch out for the stakes and garlic!

ZENITH ● MARTECH

In this shoot-em-up you play the part of Rex – a thick-skinned, piggy-eyed mercenary with no friends. Using an array of lasers, multiple spraying machine guns and deadly Rex smart bombs, you've got to infiltrate a vast underground cave system to get at the weak spot of The Great Tower. Destroy this tower and it'll teach those uncaring, atmosphere-polluting Humans a thing or two.

SPECTRUM – now that looks like a handy weapon!

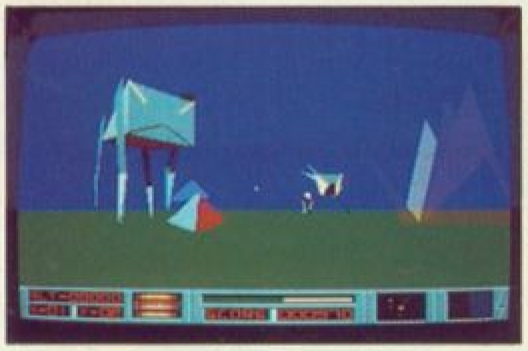


FEELING HOT, HOT, HOT

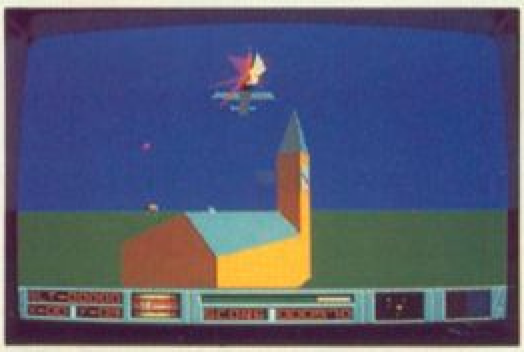
ACE takes its monthly look at what software houses are going to be tempting us with in the near future. Will we be dancing for joy on the way to the shops – or wishing they hadn't bothered?

SIEGE ON LONDON ● CRL

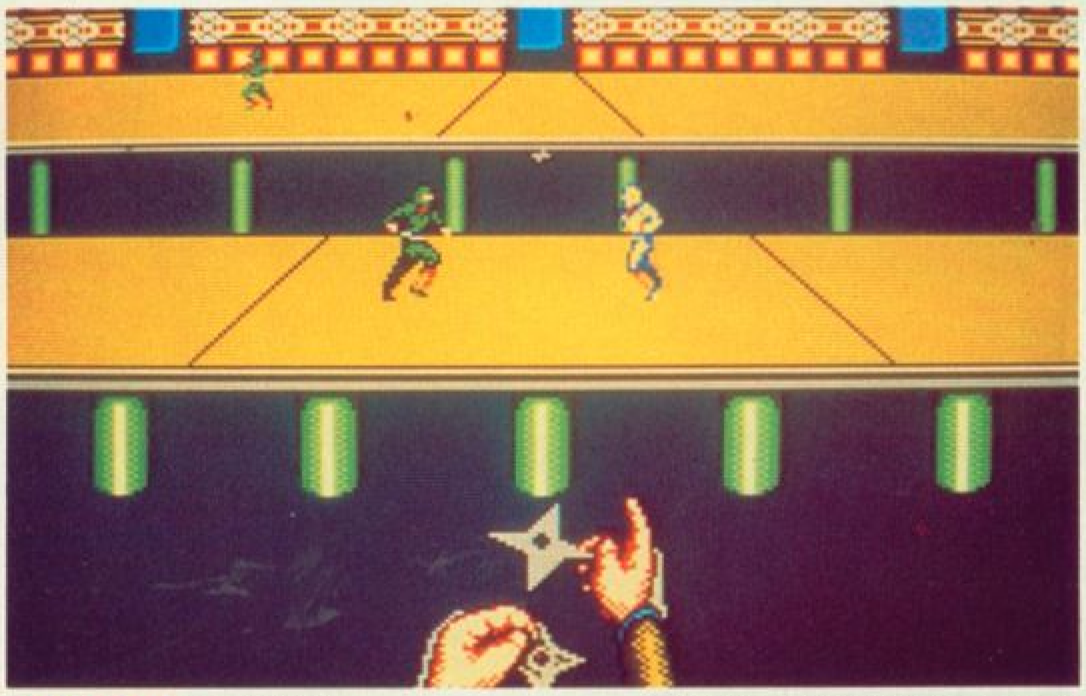
A whole host of mechanical nasties have invaded the capital, so it's down to you to save the day and destroy them. So jump into your craft and get blasting – try not to shoot too many of the landmarks though, eh?



AMIGA – fire off some missiles at that evil cat-like creature before he stomps all over you.



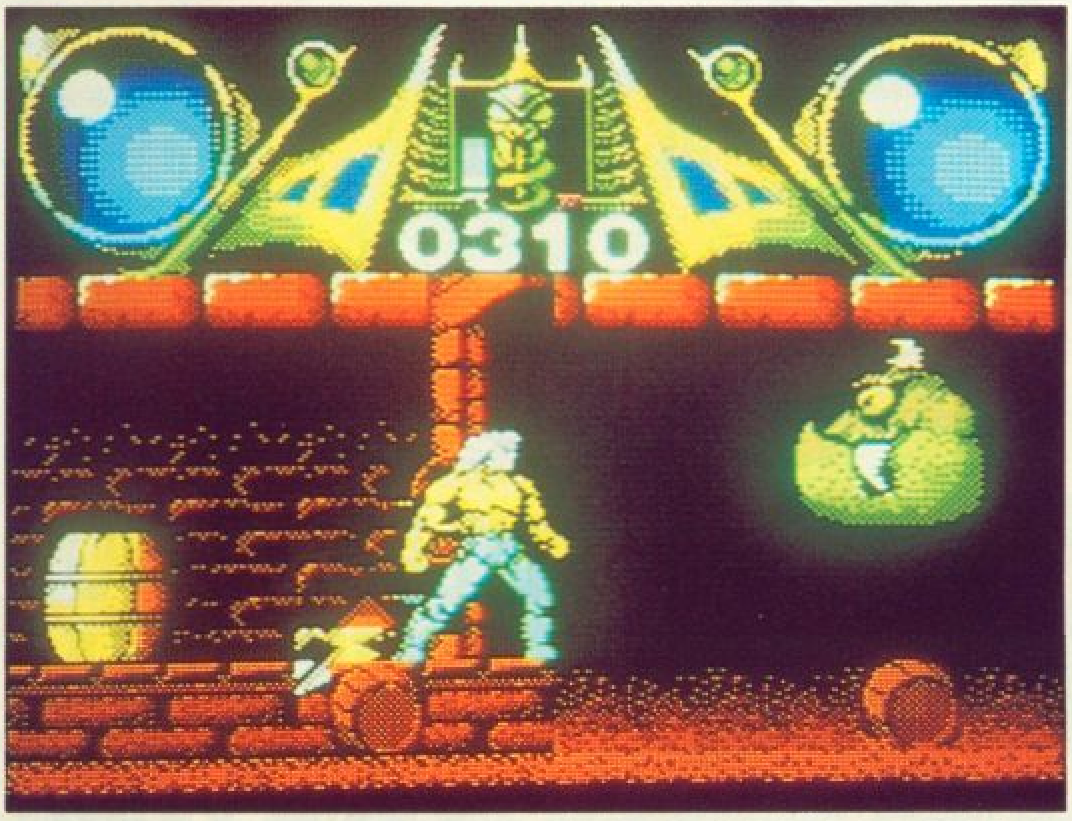
AMIGA – Would your conscience let you blow up the Houses of Parliament?



SEGA – lob those Shuriken at the running baddies.

SHINOBI ● SEGA

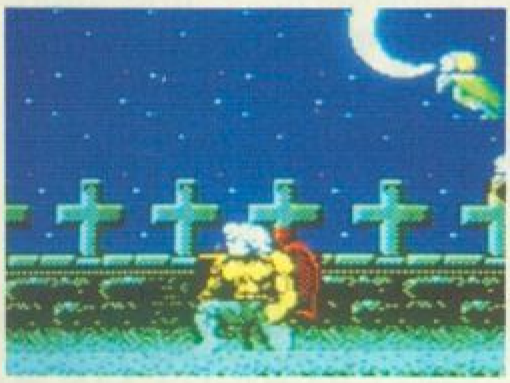
The console version of the arcade hit. As Joe Musashi you've infiltrated a base run by evil ninja and outlaws who've been capturing children. There's plenty of high-speed action, a variety of weapons and a wide range of Ninjutsu techniques to use in the battle.



AMSTRAD - you're the hunky brute in the middle, about to do battle.

SAVAGE ● FIREBIRD

Hell hath no fury like a Savage missing his loved one. This 8-bit multi-loader features some stunning graphics, fast gameplay and a host of baddies to hack and slash away at. You'd better get your axe honed razor-sharp in preparation then.

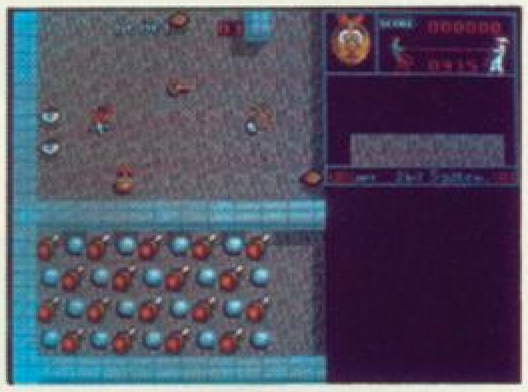


SPECTRUM - you shouldn't be out at night without so much as a vest you know!

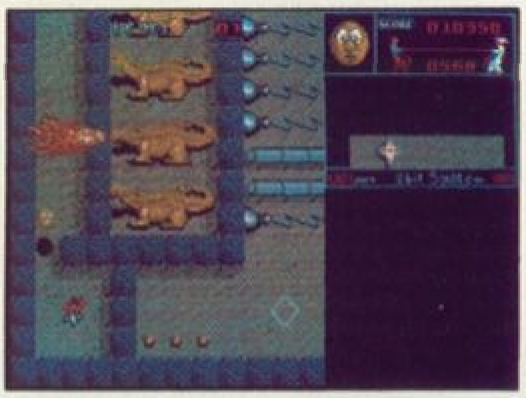
PUFFY'S SAGA

● UBI SOFT

This *Gauntlet*-ish bouncy ball game features some great graphics and tricky puzzles to solve. The French certainly know how to make a game look good, so here's hoping it plays just as well.



ST - Mrs Puffy's on the first level and is surrounded by loads of useful items. Those eye-like creatures are causing her some worry though.

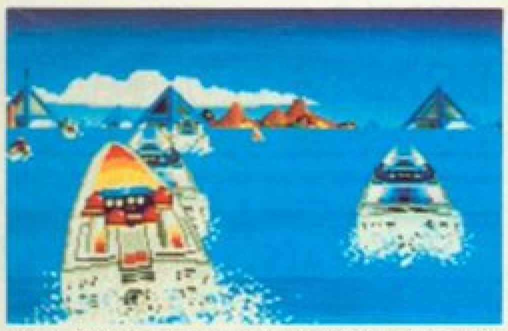


ST - Puffy narrowly avoids getting the seat of his pants singed.

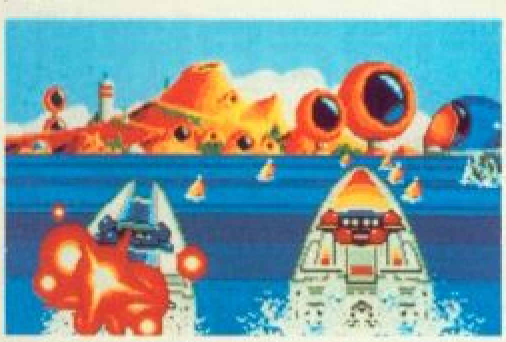
OFF SHORE WARRIOR

● TITUS

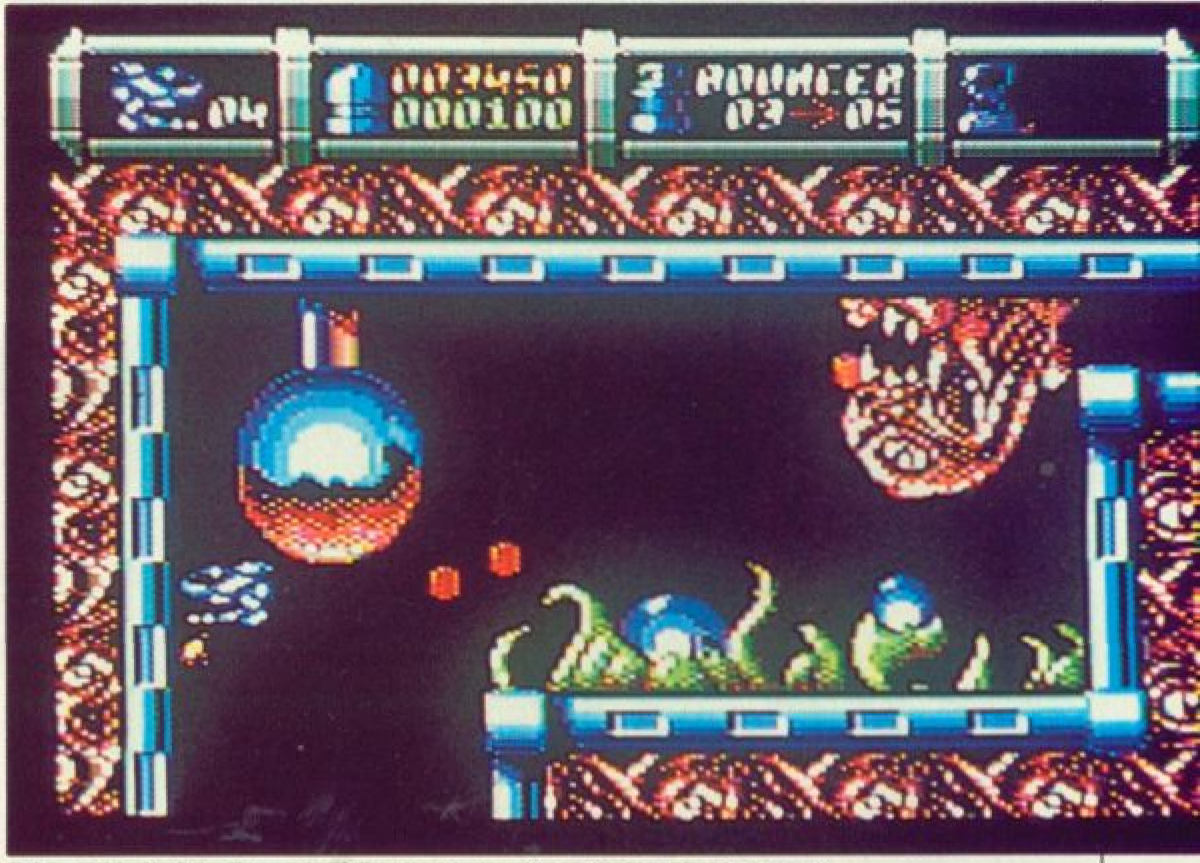
In the year 2050, violent street sports aren't enough to satisfy the people's bloodlust. They want more violence, so a new sport has evolved in which anything goes. You have to take part in this new sport, that's played at sea in super-fast speedboats. Reckon you've got what it takes to survive?



Amiga - powering your way around the course in fourth position.



ST - With that boat destroyed, you're now in second position.



Cybernoid II on the C64 - That gruesome thing hanging from the ceiling doesn't look too friendly.

CYBERNOID II THE REVENGE ● HEWSON

The sequel to *Cybernoid The Fighting Machine* includes some major new features such as new weapons systems (time and smart bombs), new static features (horizontal lifts and optional exits) and new alien features (Baiter aliens to drive the laggardly from screen to screen, and armoured emplacements).

GET SAVAGE.

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- LEAP OVER BLAZING CHASMS

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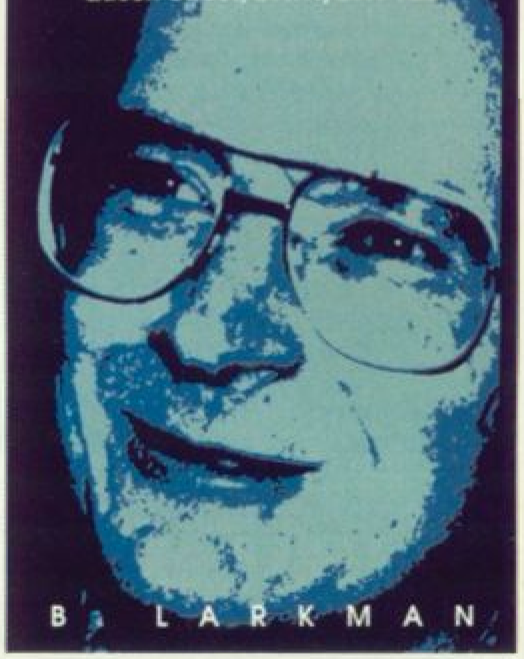
FRANK N. STEIN'S AMIGA IDENTIKIT

What would the most famous 'mad professor' have given for Electronic Arts' latest graphics package? His right arm – or someone else's? *Deluxe PhotoLab* provides almost all the tools required to cut up pictures and stitch the best bits back together – then print them out monster size. Would you take the risk? Brian Larkman does – and lives to tell the tale.

GRAPHICS SEWN UP...

ACE Pixel Professor Brian Larkman brings us a monster instalment of his DIY graphics course this month, with a review of *Deluxe Photolab* from Electronic Arts.
Plus – Pixel Post, the section where our readers' graphic glitches get an airing. If you've got any problems, queries or helpful hints, drop Brian a line c/o Pixel Post, ACE Magazine, 4 Queen Street, BATH, BA1 1EJ.


B. LARKMAN

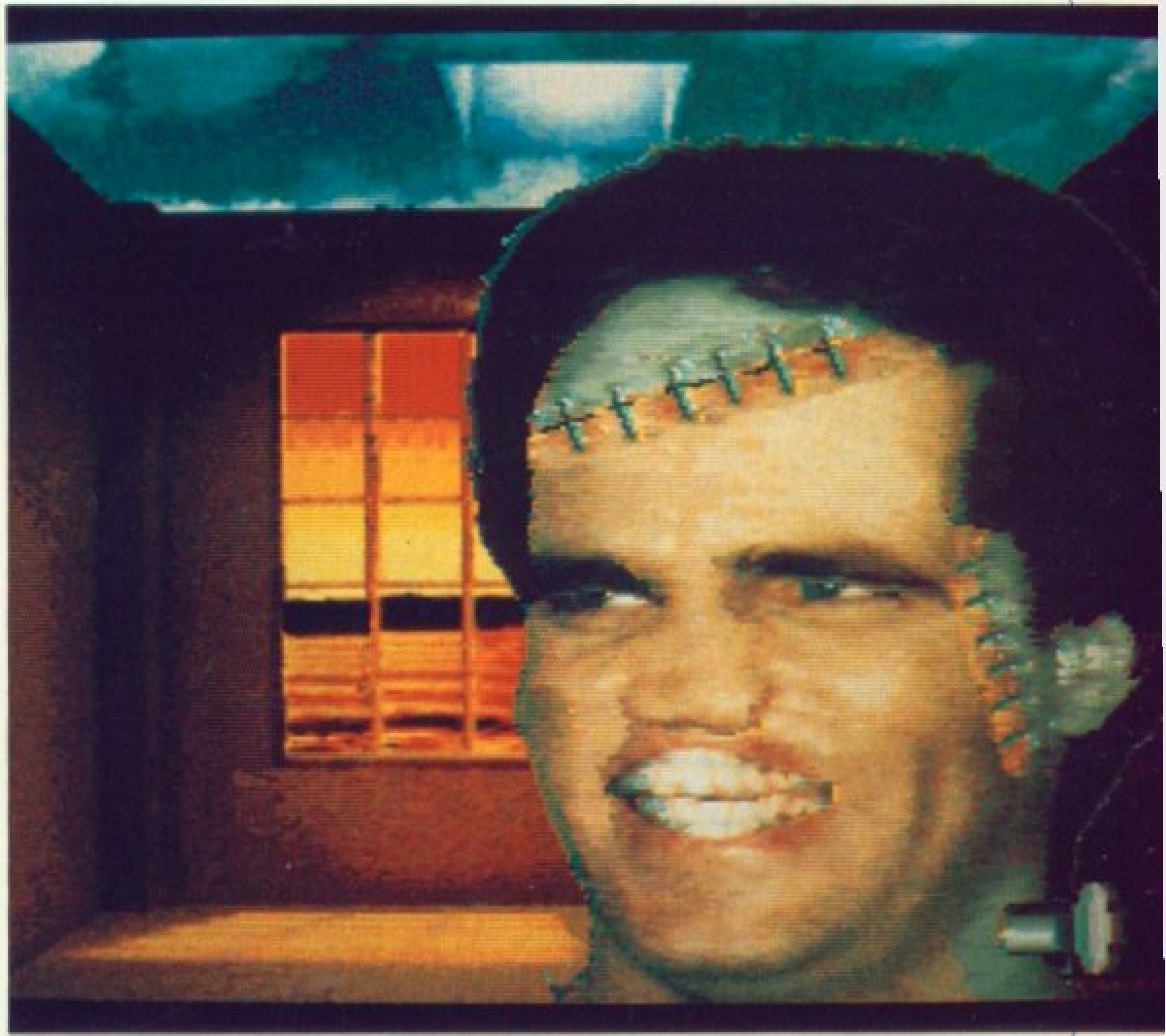
So, you want to build a monster, eh? And the idea of digging up bodies does not appeal? *Deluxe PhotoLab* (Electronic Arts £69.95) may be just what you need. Several other programs have been released over the last year that together would allow you to do much of what *PhotoLab* can achieve – *Digipaint*, *Pixmate* and *Hugeprint*, for example. Nevertheless, this is the first complete system claiming to offer all of the tools required in one package (though the scalpel seems to have been left out of the review copy).

Deluxe PhotoLab consists of three programs on one disk: PAINT allows photo quality pictures to be painted and composed: COLOURS will process the size, resolution and colours of existing pictures: POSTERS prints any picture at any size up to 10 x 10 feet.

PAINT is at its best processing digitised pictures. It allows the user to work in any screen resolution as well as HAM and Extra Half Bright (see box Amiga Screens), but some of its 'paint modes' are most effective using the 4000 odd colours of HAM. Almost every drawing tool imaginable is available, bar the perspective and contour mapping of *Photon Paint* (reviewed ACE 10). The range of effects is so broad they will take a long time to master, so rather than discuss them in detail let's do something with them. Let's make a monster.

COLLECT THE 'BITS'

In the best F.N. Stein tradition we will start with a body. Any body. As usual, the only one available is the wrong size, so pick it up as a brush and then enlarge it. In common



FRANK'S PAL
One of the real joys of using *D. Photolab* is the ease with which images can be mix 'n' matched regardless of resolution or size. The background was originally the package cover by Larry Keenan, included on disk (sorry Larry). Much of the detail was removed by picking up an adjacent area of background as a brush and painting it on. Edges were cleaned up using a small brush in various Brush Modes - blend, shade etc.

with most Paint operations, both of these actions can be done in a number of ways.

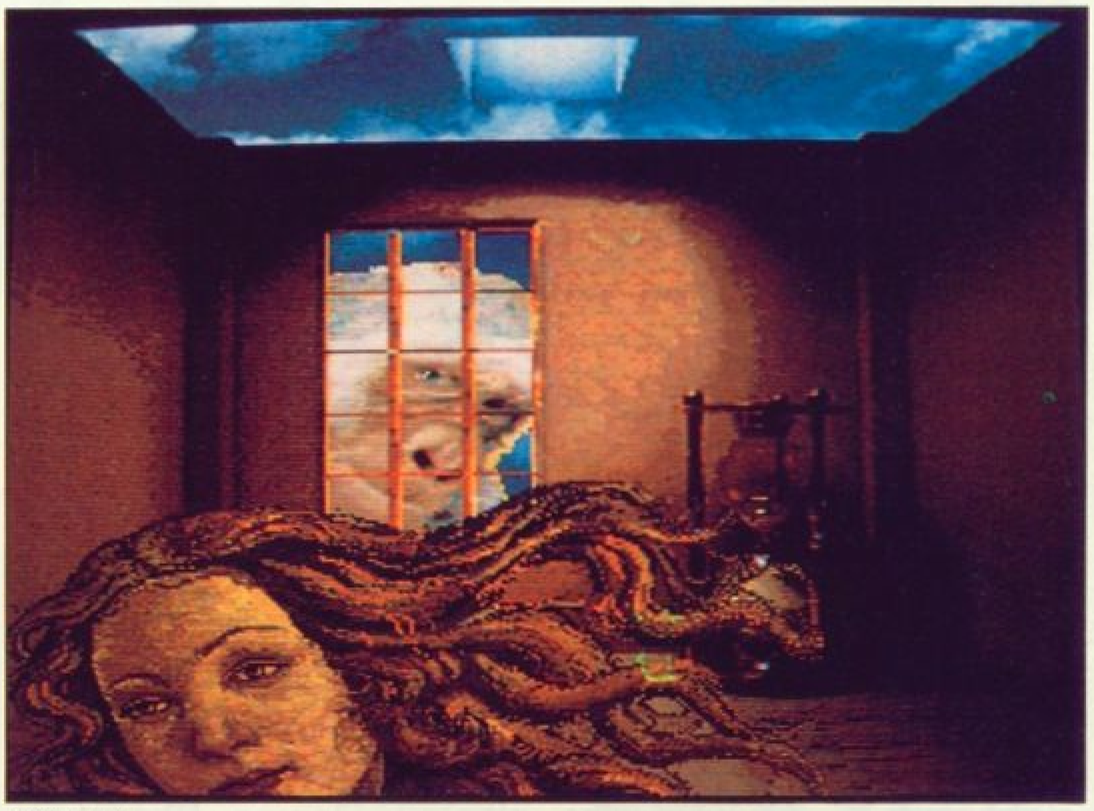
KNIFEWORK

Selecting the Scissors 'brush selector' allows any rectangular or freeform screen area to be cut in the usual way. (The area within the box or free-shape is copied and attached to the cursor as a 'brush'.) More remarkable is the Grab Last option from the Brush menu. Selecting this grabs whatever you drew in your last painting operation, even if you were already using a multi-colour custom brush. If the Shift key is held down as well, the area beneath is selected instead, so that the previously painted area acts as a stencil. Carefully, the whole body is painted with one contrasting colour in one operation, then Shift/Grab Last is selected. The body floats free!

PUMPING IT UP

Enlargement can be carried out on the free brush or, if you know exactly where it is to go, as a drawing operation direct to the screen. The latter method saves time, especially with a large brush. Try it. If the face or limbs are not gruesome enough, use Brush Warp in the Fill requestor to distort them.

As the now much expanded body materialises on the operating table it becomes obvious that something quite unusual is taking place. Instead of the tiny individual squares of the original growing to ugly granular blocks in the enlargement, the body is just as smooth as before, though a little blurred. Growth doesn't mean graininess in this laboratory.



VOYEUR APE
The background is again the package cover by Larry Keenan. Both the extra images, Gorilla and Venus, were loaded using a separate 32-colour screen and their backgrounds removed by filling with HAM Closeness (on the fill requestor) set to about 20. This means that several shades of a particular colour are all filled but nothing else. Each image was then picked up, sized and transferred to the main, HAM, screen and pasted down, the Gorilla with Affect Background selected.

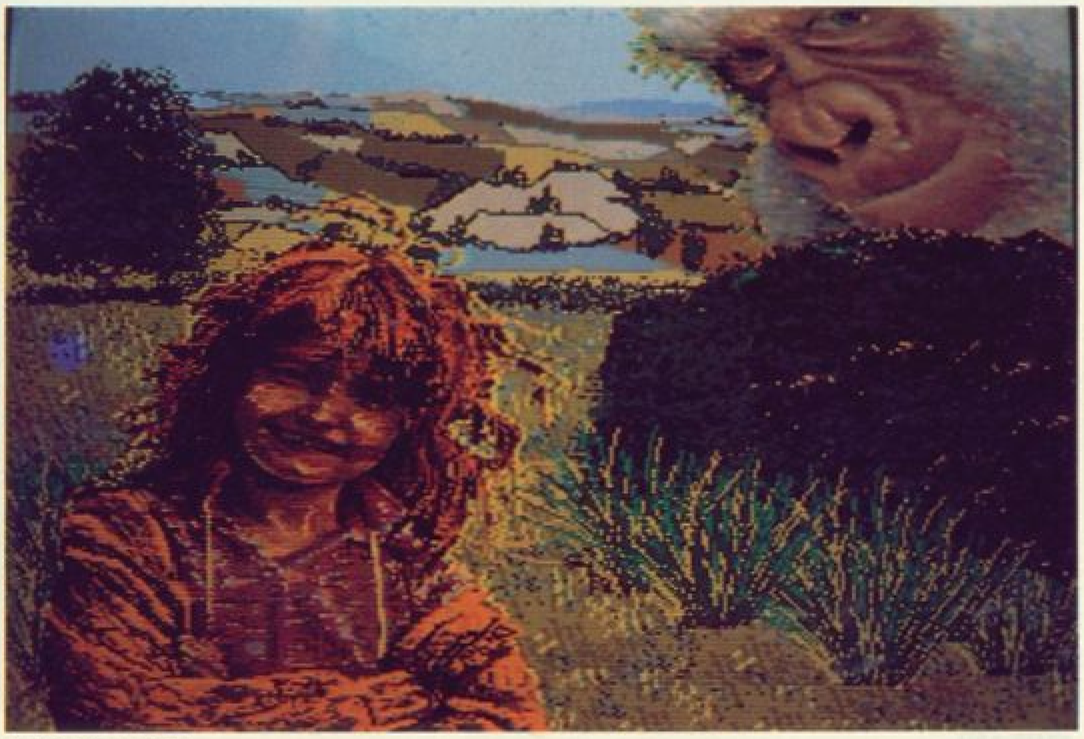
NEEDLEWORK

Now that we have a body we can start to add limbs. Once again, any size or resolution will do because we can expand or contract, change resolution or screen mode at will – but what happens when we join bits on? Those stitches will surely make ugly scars? Much like NewTec's *DigiPaint*, the original onmicolour paint system, PAINT has a wide range of Paint Modes. These can control exactly the way a brush affects the colour of an area it is pasted over, varying the degree and distribution of transparency. In practice, a limb or facial feature can be added with hardly a seam. Very soon the monster is lying, complete but colourless, on the table.

ADD THE COSMETICS

A complete, seamless monster on the table is one thing, but we must put some colour into its cheeks. A little 'make-up' perhaps? Small areas can be changed using the 'paint modes', but if the whole picture needs to be transformed a move into COLOURS is required. Although multi-tasking is possible, the Amiga's clipboard facility is not used so the picture must be saved and reloaded.

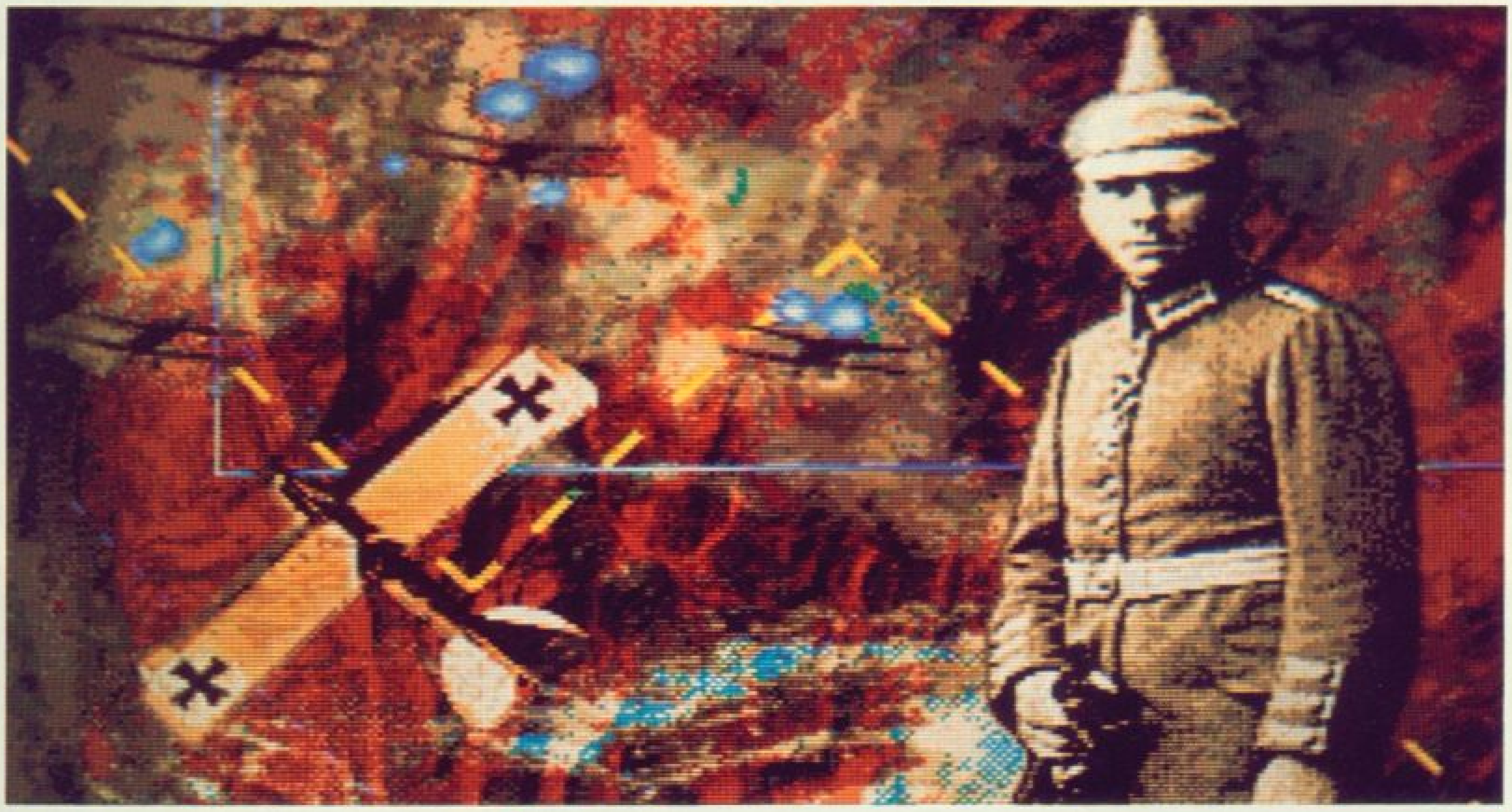
COLOURS is designed to give full control over the colour palette. Any palette can be sorted or adjusted using one or more of seven parameters – Red, Green, Blue, Hue, Saturation, Value and Population. It would have been nice to adjust using Contrast and Brightness controls as well, but these effects and most others can be achieved with the controls provided. The relative amounts of all these



WAIFS AND STRAYS
As you've seen in previous issues, re-cycling backgrounds can be very useful. Here is the same landscape hiding some waifs and strays. In fact all that was done in this picture could have been achieved using *Deluxe Paint II*, though the limitation of 32 colours would have made the extra images look a bit odd. The difference was the ease with which it is possible to work in any resolution. Unlike *Photon Paint*, *Deluxe Photo Lab* will work in lo-res 32 or 64-colour as well as HAM.

AMIGA SCREENS

The Amiga is capable of displaying 320 pixels or 640 pixels across and 256 lines up its screen (using the PAL video standard). By scanning the screen twice in the same period of time it can interlace twice as many lines, giving 512 lines vertically. When 320 horizontal pixels are displayed, a maximum of 32 colours can easily be displayed, though a further 32 colours half as bright (EHB) can also be used. With 640 pixels across only 16 colours are possible. Using a special technique called Hold and Modify (HAM), all 4096 colours can be used in low resolution and interlace. Almost all Amigas, therefore, have 8 screen modes – low, medium, video or lace, high, low EHB, lace EHB, low HAM and lace HAM (a few very early A1000s do not have EHB). In all display modes it is possible to have several degrees of 'overscan' to remove the normal border, which also alters the vertical and horizontal resolution.



An example of the sort of image that can be produced with *Photolab.*

parameters as well as cyan, magenta and yellow are shown for each individual pixel (centred on the cursor) and precision can be increased by pressing the right mouse button, which turns the cursor into a magnifying lens. (This would also have been very useful in PAINT.) All these hues can be separated on-screen ready for printing out. In the printing industry Cyan, Magenta and Yellow separations are essential for mass production.

Other tools are offered by COLOURS to change the size and display mode of any picture, with or without smoothing. Overall, COLOURS is not as powerful as *Pixmate* or *Butcher*, nor is it as easy to use as *DigiView*. As one third of a £70 package it is nevertheless perfectly adequate.

THE STORM APPROACHES

'Well professor, anyone can put a monster together given the right ingredients and a strong stomach, but can you give it life?'

CLIPBOARDS

The Amiga's graphical interface – called Intuition – allows the information contained on one screen to be transferred quickly to another screen via a device called the Clipboard. This is especially useful when multitasking – running two or more programs at once – because the two screens can be in different programs. In *PhotoLab* it should have been possible to run all three programs and transfer a picture from one to another without saving to disk, providing the machine has sufficient memory. Clipboards work equally well with text.

SCOTTISH TECHNO-MONKS SPREAD THE WORD

There is often something almost religious about computer enthusiasts. Dedication to one deity; long evenings and even whole nights spent crouched alone before its altar; single-minded preaching of one true faith. House all this in a monastic building and you might get a community of techno-monks.

Hardly monks, the folk at Amiga Centre Scotland (housed in an ex-monastery) are nevertheless dedicated, enthusiastic and hardworking for the cause of the Amiga and especially the Amiga's graphics. As a result they have built up in less than two years one of the best selections of hardware and software for the Amiga in Britain.

Martin Lowe, the founder of the company, started his involvement with an A1000, one of the first in Europe. Finding himself made a dealer for the machine without any proper premises, Martin began selling them by carting the whole setup round from place to place in his car. Now the company is 9 strong and based in an ancient four storey building down a narrow lane near the centre of Edinburgh.

The Amiga Centre specialise in importing graphics software from the U.S., acting as sole distributors for several products including Martin Hash's ANIMATION series and Eric Graham's SCULPT ANIMATE 3D. They can also source almost any product you may require from anywhere in the world. Martin Lowe is constantly on the search for new graphics products so their catalogue is constantly expanding. Recently for example two new graphics products have appeared, ANIMATION: FLIPPER from Hash Enterprises, and FANCY 3D FONTS from Access Technologies. On a recent trip to AmiExpo in Chicago Martin secured distribution rights to these and several other, non-graphics oriented products.

As well as software Amiga Centre Scotland distribute a number of hardware products including a hand held scanne, Perfect Vision digitiser and several upgrades to increase speed of operation.

Dealers specialising in this area are hard to find. If you know of one let us know. The Amiga Centre Scotland can be found at 4 Hart Street Lane, Edinburgh EH1 3RN, tel: 031-557-4242.

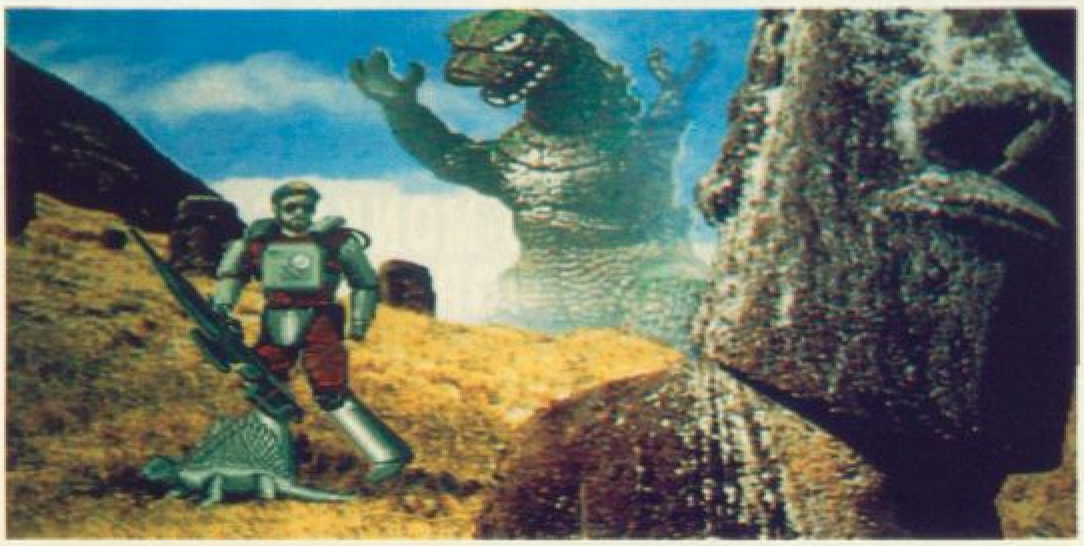
Frankenstein succeeded with the use of an electrical storm, we must make do with a printer, preferably colour. The POSTER module of *Deluxe PhotoLab* is the simplest and least fussy part of the package. Its results can only be described as superb. The monster truly comes to life, life-size.

Any IFF picture can be loaded to POSTER, but unless you choose to 'preview' it is only displayed as a grey box of the correct aspect ratio on a grid representing the maximum size printout available. Each grid square is in the proportions of the paper size selected in preferences, but can be changed to suit any size paper. The grey picture box can be dragged out to any size, either in its original aspect ratio or as-you-like. Two menus provide all the remaining options: Load – Print and Quit – plus Horizontal Printing and Aspect Ratio toggles. Selecting Print allows you to select which pages to print and whether the picture is to be 'smoothed' – anti-aliased – before printing. That's just about all there is to it. Much simpler and very much more reliable than lightning.

ANTI-ALIASING

This smooths the jump between contrasting colours with average coloured pixels, causing a slight blur but reducing the dreaded 'jaggies'.

Using a Xerox 4020 inkjet printer a two foot by three foot picture printed horizontally in three strips looks extremely professional and oh-so-lifelike. Even with a Citizen 120D with a 'blunt' ribbon the resulting poster has a quality never before seen from a 9-pin machine, especially with the Amiga's new 1.3 printer preferences. (Floyd-Steinberg randomised dithering gives by far the best results, though the colours may need to be adjusted on screen.)



Just one of the images supplied on disk with *Photolab*.

FRANKENSTEIN GETS GAZUMPED

In many ways the names of the two best omni-colour packages sum up their differences: *Photon Paint* is primarily fun and easy to use, but still a very powerful painting system: *PhotoLab* is somehow more professional (read more complex), offering several routes to achieve any effect, leaving the user more room to experiment, as if in a laboratory. They are both cleverly named!

The one real flaw in *PhotoLab* (apart from a couple of worrying visits to the guru while in use) is perhaps just regret at a missed opportunity. To transfer a picture from PAINT to COLOURS, the image processing module, requires saving it, quitting Paint, running Colours and loading the picture again. Multi-tasking, or running the modules from a RAM disk, speeds things up greatly, but why is the Amiga 'Clipboard' feature not used (see box – Clipboards)? *Pixmate* shows the way here with its ability to 'grab' the next screen beneath. The three packages comprising *Deluxe PhotoLab* could surely have been integrated in this way?

Nevertheless, from within PAINT it is possible to open several screens of different size, resolution and type – say low-res HAM and interlace halfbright – and cut and paste pieces back and forth quickly between them – a very powerful tool. Combined with the ability to anti-alias any enlargements – whether of brushes in PAINT, whole multiple screen pages in COLOURS or 10 foot square posters in POSTERS – the multiple modes of *PhotoLab* make it a unique and extremely versatile system.

The next time you are threatened by a HUGE monster, check closely. If it is made up of eight-and-a-half-inch strips of paper, Electronic Arts are to blame for your predicament. ●

LETTERS

Dear ACE,

I have recently built up a collection of digitised pictures from BBS and PD. I have got a copy of Quantum Paint *so that I can have a go at altering and cutting up my pictures on my ST but I would like to do the same sort of things that my friend can do with his Amiga. Is there anything like* Butcher *for the ST?*

James Driscol, Slough

Dear James,

In a word the answer is no. The problem is that so far there has been no need for this type of program as the ST still has no equivalent of a HAM digitiser so there are very few full colour pictures around. Almost all of those that are available have been transferred from the Amiga. The best way to change the colour balance of your pictures using an ST is with *Spectrum 512* from Antic. Unfortunately this is quite expensive compared to *Quantum Paint* but it is still probably the best equipped omni-colour preg for the ST. *Quantum* is supposed to be having more facilities using its 4000 colour mode, but even on the latest version just received they are ghosted out and unavailable.

Dear ACE,

I am really interested in drawing pictures on my C64 using Advanced Art Studio. I always read the graphics section of ACE but you never feature the Commodore or any other 8-bit computer. I know the graphics are not as good on these machines but what about a review of something we can use?

Cathy Wallace, Cambridge

Dear Cathy,

Well, we made a start in the last issue with *Micro Design* for the Amstrad CPCs. The trouble is that we only review fairly recent software and there is very little of it for your machine – in fact there is none. As soon as an update for something appears I will review it. Most graphics programmers seem to have given up on the more limited 8-bit machines in favour of the advanced features of the 16 and 32-bitters. A great pity really because there is still a lot of potential left in the C64 and CPCs, especially using overlay techniques. *Advanced Art Studio* is a good example because it provides all of the basic facilities required but it could still be upgraded with some special features loaded from disk, like smoothing of selected areas, surface 'contour' mapping, edge direction and many other things. All these would work very slowly on 8-bit machines but the wait would be worth it – just as it is with ray-tracing on the Amiga. Lets hope someone sees the worth of these suggestions and does something about them.

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There was only one way to improve the original.
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THE ART OF GAMES DESIGN

PART THREE

What's in a game? This month, in our on-going series on game production, we find out how Psygnosis generate their spectacular displays, and get some insights into game design from Lambshead and Paterson – the design partnership responsible for The Fourth Protocol...plus their tips on how to make your game ideas SELL....

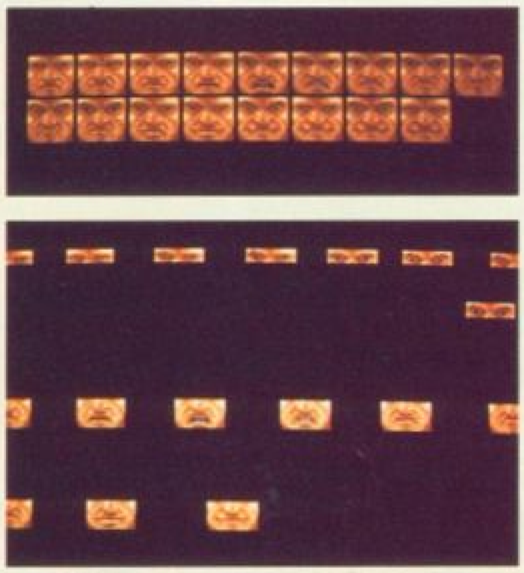
For most ACE readers, the trend toward 'realism' and game design detail in all but the worst entertainment software is obvious. What's not so obvious is how it's done. Whether it be in graphics or in game ideas, advances in gameplay have been largely the result of greater expenditure on design by software companies. Let's look at graphics first and check out some of the ideas behind the screens of advanced computer entertainment.

The main thrust of improvements is taking place on the two obvious fronts, 2D and 3D, though the difference is becoming increasingly blurred. We'll discuss each 'thrust' in turn – 3D in terms of the wide range of options being developed, as there are so many companies involved, 2D with reference to the efforts of one representative company, Psygnosis, well known for their distinctive graphic 'style'.

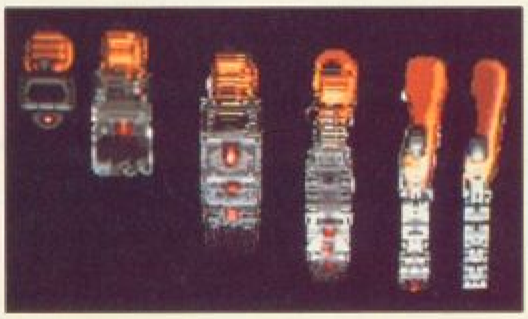
● 4D SPACE-TIME

As it applies to games design, the term '3D' should now really be changed to '4D', for the vital factor in almost all the latest examples is the fourth dimension, time – translated for the viewer into speed. Until the arrival of *Sentinel*, *Zarch/Virus* and the Freescape games, almost all 3D games were limited to wire-frames, easing the burden on overworked processors. The exceptions – *Flight Simulator II*, for example – were so processor-intensive that, so as to update in real time, the display appeared as a series of stills rather than an animation.

Using the powerful 68xxx or RISC processors of the latest machines, smooth realtime animation in 3D is possible, but while the new programming techniques necessary are developed, several strategies have been used to produce games that are both playable and visually innovative. Two techniques in particular can get round the time/speed problem – stay in space, or USE the limitations.



Shooting your mouth off. Psygnosis designers check out facial animation – very difficult indeed to do well.



Quick on the draw, if you'll excuse the pun. Working out the animation for the shooting.

Maelstrom have produced an excellent example of the former technique with *Whirligig*. In space there is little or no background to be updated. *Elite* running on the pathetically limited BBC showed how smooth animation in 3D could be achieved if there was no background. Extending that idea to 68000 machines with *Whirligig* has allowed an astonishing degree of realism for the solid objects involved, including true light sources and shadows. To increase speed further, *Whirligig* operates in a very limited form of 3D. The objects are solid and move realistically about their own centre of gravity but the space they move through is two-dimensional – effectively the xy plane of the screen. In practice, they never change their range from the observer.

It will be interesting to see what *Whirligig* looks like on slower 8-bit computers, probably a slower update and less detail. Nevertheless, as Incentive have shown with their very effective Freescape games it is also possible to make a feature of a slightly jerky screen update. The fact is that most of us are becoming visually acclimatised to jerky animation updates via the latest pop video and TV advertising techniques. This stuttering, 'Brook Street' style was originally itself a compromise developed partly from the low frame-capture rates of the cheaper digital processing equipment. Similarly, what looks annoyingly jerky on *Flight Simulator II* (supposed to be a smooth view from the cockpit) seems acceptable on the viewscreen of an exploration probe in *Driller* or through the eyes of Firebird's *Sentinel*.

A third generation of 3D games has now arrived with Electronic Arts' *Interceptor*, Rainbird's *Carrier Command* and Firebird's *Virus*. This type of solid 3D can only be achieved with sophisticated programming techniques that take time to develop and can only work effectively on 16/32-bit machines. These provide both smooth 3D animation of multiple complex objects AND fairly detailed solid backgrounds. Such programs seem to stretch the available hardware to the limit – but then limits are only there to be overcome!

● LOUD TOBACCO TIME

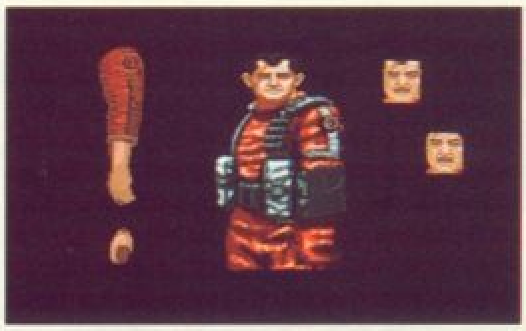
Over in the two-ring circus the key-words have been 'steady progression'. Since the earliest *Manic Miner* type platform games, exploration has taken on a decidedly more sophisticated appearance, with far more detailed and better realised smooth scrolling backgrounds, 3D mazes, larger and better animated sprites and much better gameplay. Foremost in this progressive development on 16-bit machines has been the unique style of Psygnosis.

Like most of the best things in life, Psygnosis games grow organically. Starting from the initial idea of one member of the team, a graphic artist works on a series of visual outlines. All of the artists work directly with computer paint systems (usually Amigas running Deluxe Paint II) and are constantly experimenting with new techniques that may not ever find their way into games. Sometimes as little as one fifth of the artwork produced for a game is actually used.

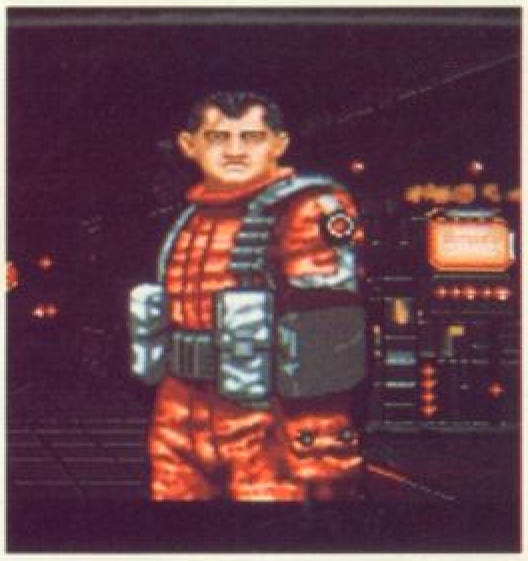
The results of this experimentation are taken back tyo the rest of the team and modifications are discussed. Programmers might suggest ways to save memory space or make the game run faster and other designers can suggest new visual techniques. In this way the game grows intuitively. The results of this development process for one image, the opening screen of *Obliterator*, are shown opposite. It is obvious that a lot of revision and redrawing has taken place. Attempts have been made to design games from scratch, but these usually produce inferior products.

Graphically, a game is developed in three interlocking parts – the opening screen complete with animated objects, the background/foreground against which the action occurs, and the moving/animated objects or 'sprites'. Opening screens like that for *Obliterator* are often designed as complete images with the animated sections drawn separately as between 10 and 50 individual frames.

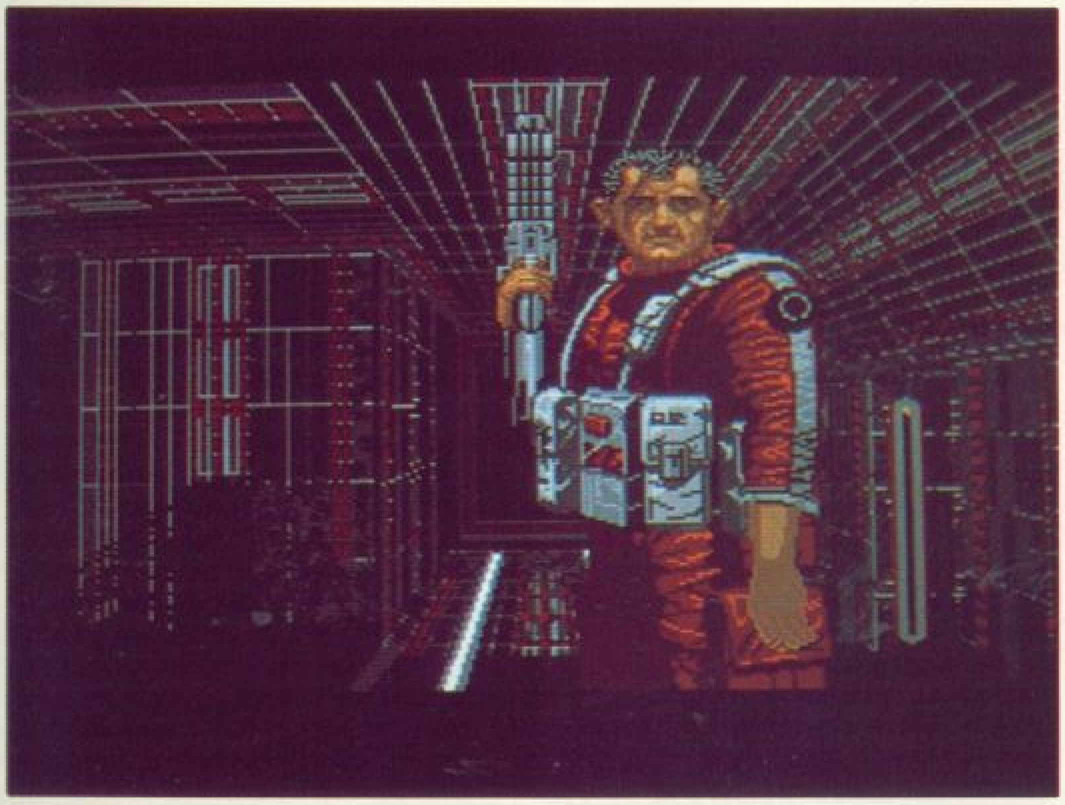
Backgrounds are designed in the form of 'construction kits'. Initially, 10 or 15 pieces are drawn – steps, rocks, arches, rough-hewn blocks etc – each about 10 x 30 pixels. These are assembled into large 'screens' that can be scrolled about in the game. Each piece is stored individually and each time it is used its centre position in coordinates is recorded. If a new shape is required it is added to the 'kit'. Huge libraries of these parts have been assembled which can be re-used in different combinations or with changed palettes. All artists are encouraged to think technically and the files they pass on to the programmers include the raw data ready for inclusion into the game.


Collecting the bits. Each unit is worked on separately and can then be stored for future use.

Objects/sprites are also often assembled in parts. In their latest game, some of the objects which move toward/away from you (expand and contract) are in 27 sections allowing very smooth animation. Others, like the backgrounds, might be composed of some recycled parts from other creatures or even other games.


We're getting there now. Time to call in the background designers.

Generally speaking, the system used so far by Psygnosis is similar to that used by many games producers. The 'style' of Psygnosis games is purely dependent on the skill of the artists involved. The enthusiasm of these artists for experimenting with *Deluxe Paint* and other software packages is what gives their games the edge visually. In parallel with this the programmers are constatly revising their skills and exploring the so far untapped resources of the ST and Amiga hardware. This allows for more complex and smoother scrolling backgrounds and larger and better animated objects. Psygnosis development engineers are now exploring regions of the Amiga that no-one else has yet tapped. They promise exciting things.SS


Putting it all together.

PRACTICE MAKES PIXELS

Designing a successful game graphic – a sprite, for example – involves a lot more than simply an ability to draw. To develop your skills in this area you need a good art package with a zoom feature (sometimes called 'fatbits' after this element of the original *MacDraw* program). Here are some of the things you need to bear in mind:

- **memory.** Graphics are often the real culprits when it comes to swallowing up precious RAM. This can be particularly crucial when working with animated figures where you need to store several frames. You'll need to know how much space the programmer is setting aside for graphics and whether or not they will need to be compressed in any way. Some compression methods work better with certain types of screen layout, so make sure you know what's expected of you.
- **screen layout.** This is pretty obvious, but one point occasionally overlooked by beginners is the 'aspect ratio'. You may, for example, want to develop your graphics on the ST and then port them onto another machine – only to find that the ratio of horizontal to vertical resolution on the target machine is different. Circles need to look like circles, not eggs.
- **luminance.** You may try to sketch out some rough designs using graph paper, but you'll find this misleading. Pixel displays look very different on-screen, because the eye does funny things with the juxtaposition of colours and their relative luminosity. Practice makes perfect here, since you'll find that adding in little touches of colour under high magnification often has unexpected effects on the actual-size graphic. The same applies to draughtmanship – what looks best when magnified doesn't always work best at actual size. Try blowing up some conventional images with your art package and see how the images are put together in terms of colour and pixels.

LAMBSHEAD AND PATERSON

What happens when two games-obsessed boffins get together and start dreaming? They make a fortune, that's what. Or do they? And could you get in on the act as well? Find out as we check out the secrets of the dastardly duo...

It all started with role-playing games and little tin men. Gordon Paterson used to develop RPG scenarios for his friends, and John Lambshead battled for world supremacy in the wargames arena. Then they met up and their lives were changed forever....

'You see, when I read the books of the game scenarios,' explains Gordon, 'they gave me no idea of how you actually had to PLAY the games, so I had to start from scratch, developing my own scenarios.' His frustration was echoed by John, who had just finished a spell as games reviewer/editor (of both board games and computer games) for an old magazine called The Gamer. 'Computer games effectively killed off that mag,' he muses, 'but it gave birth to Lambshead and Paterson.'

So what do these boys actually DO? 'We design games,' they reply simply. And this is how they do it...

● THE IDEA

There are three possible areas to look at, say the lads. These are:

- book/film subjects. The Fourth Protocol is the obvious example here.
- other licensed subjects, including games and/or board games;
- your own original idea.

Although each of these demands a different approach, there are some very important basic rules to keep in mind. First, 'We look for a hole in the market. We can't overstress the importance of that. We ask ourselves what the market's doing at the moment and, most importantly, what it's missing. It doesn't matter how brilliant your game is, you have to produce a product that the market wants.'

Second, 'Be original,' chorused the boys, 'Games design is still seen as an extra cost by software houses, so you have to give them something for their money – originality.'

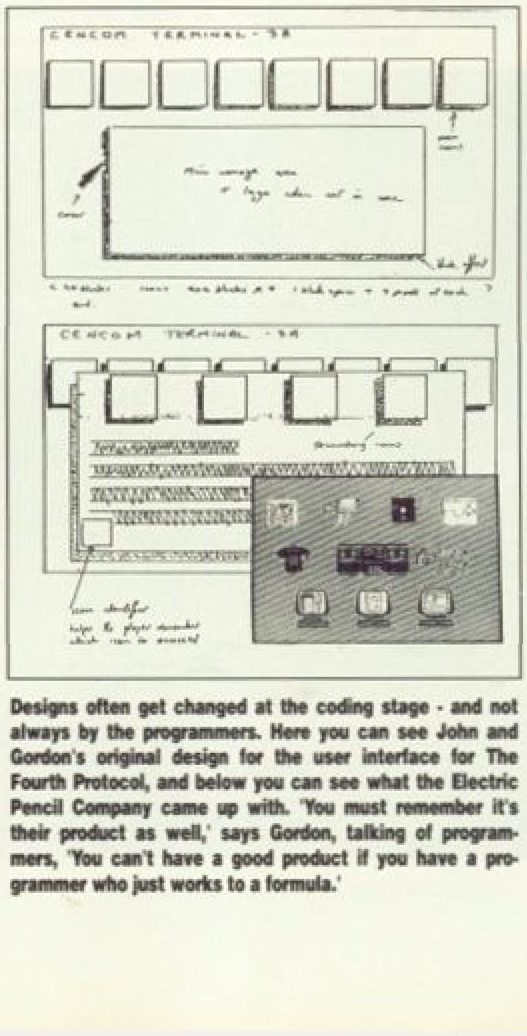
Finally, get a good story. 'The brand leaders all have that story quality,' they point out. You ignore it at your peril. However clever your design ideas, unless there's a strong story-element (e.g. a plot of some kind and an atmospheric background) then the ideas are likely to fall on barren soil.

● SELLING YOUR IDEAS

You can't ignore the business element. Lambshead and Paterson have all their work handled by the Marjacq agency, who also handle people like Jez San and David Braben. 'They get on with the whole business side,' says Gordon, 'If you want to spend your time negotiating contracts, you can't get on with designing games. It's a very reassuring feeling to know that someone is taking care of that side - and that's especially important in the games industry.'

John Lambshead and Gordon Paterson. The gentleman in the background is no relation.

As always, you need to express your ideas clearly and professionally. However, there was agreement that even a botched-up presentation to a software house can be taken up if the idea is right.



Designs often get changed at the coding stage - and not always by the programmers. Here you can see John and Gordon's original design for the user interface for The Fourth Protocol, and below you can see what the Electric Pencil Company came up with. 'You must remember it's their product as well,' says Gordon, talking of programmers, 'You can't have a good product if you have a programmer who just works to a formula.'

● DEVELOPING THE DESIGN

John and Gordon are old-style designers. Their background in board-game design means that they tackle the design stage methodically and ruthlessly. Their first objective is to immerse themselves in the subject, by reading books, seeing videos, and (if it's a film) reading the script. Only when they've thoroughly grounded themselves in the subject do they move ahead to design.

'It's getting what we call the 'giz' of a book,' says Gordon. 'It's a term from bird-watching, and was also used during the war by gunners who had to recognise different types of aircraft. Getting the giz of the idea is the most vital part of the process.'

With the giz sorted out, a substantial amount of their work involves creating plot-lines. Unless you're working on your own individual idea, you'll find yourself presented with a fixed plot in either book or film form. Computer games require a good deal more, of course, so you have to carefully construct the logic of the game from scratch.

Before you reach this final stage of plotting and logic, you need to have created a game structure or system which enables the player to interact with your design – the 'front end'. Here Lambshead and Paterson get a lot of ideas from their business work, where they operate on powerful business computers. However, they do have some general comments to make – in particular their dislike of parsers. 'We've come a long way down the road since the parser-driven Hobbit', says John. Icon systems are definitely flavour of the month.

One thing's for sure – it's got to look good. 'With business software you can get away with something that doesn't look attractive, but it would be fatal in a game,' points out John. As a whole, they sum up their image of the ideal user interface as 'easy to use, flexible, and attractive.' Sounds simple, eh?

● PUTTING IT ALL TOGETHER

Once the design is sorted out, it goes to the programmers who, in this case, are EPC (the Electric Pencil Company) of Fourth Protocol and Zoids fame. 'You don't need programming experience to do games design,' says John, 'but you do need to be aware of the technical points of the machine. Anyone can design fabulous games that are not technically feasible.'

This can become particularly crucial where more than one machine format is involved. 'Obviously you can't design a game for the IBM and then expect it to run on the Spectrum,' says Gordon, but less obviously you also need to be knowledgeable about different graphics standards within similar ranges of machine (e.g. IBM CGA, EGA, and Hercules). As John says, 'You definitely need to be computer literate,' but equally definitely you don't have to be an assembler whizz-kid.

John and Gordon have definitely proved you can make at least a part-time living out of games design. Expect to see more of their work in the near future, including the infamous sounding *Carlos the Jackal* for Activision and *Cosmic Wilderness Warrior Part IV*....

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PLAYING FOR REAL

Are micro flight simulators getting serious? Can you actually train fighter pilots on home computers? Andy Wilton hits Farnborough to find out what the Pentagon want with your PC, while Neil Graveney takes reconnaissance photos.

A California firm called Perceptronics have just taken the PC-AT version of Spectrum Holobyte's *Falcon* and built it into a sit-down cabinet, complete with genuine F-16 controls and separate avionics screens. They're so pleased with the results that they've been showing a demonstrator off at the industry's top UK show. Home micro innards have been turned into coin-ops before, so this shouldn't be too surprising – except that Perceptronics don't make coin-ops. They build combat flight simulators for the US Air Force, and their *Falcon* cabinet – the Avionics Situational Awareness Trainer, or ASAT for short – was on display at Farnborough International Air Show as a piece of military training equipment.

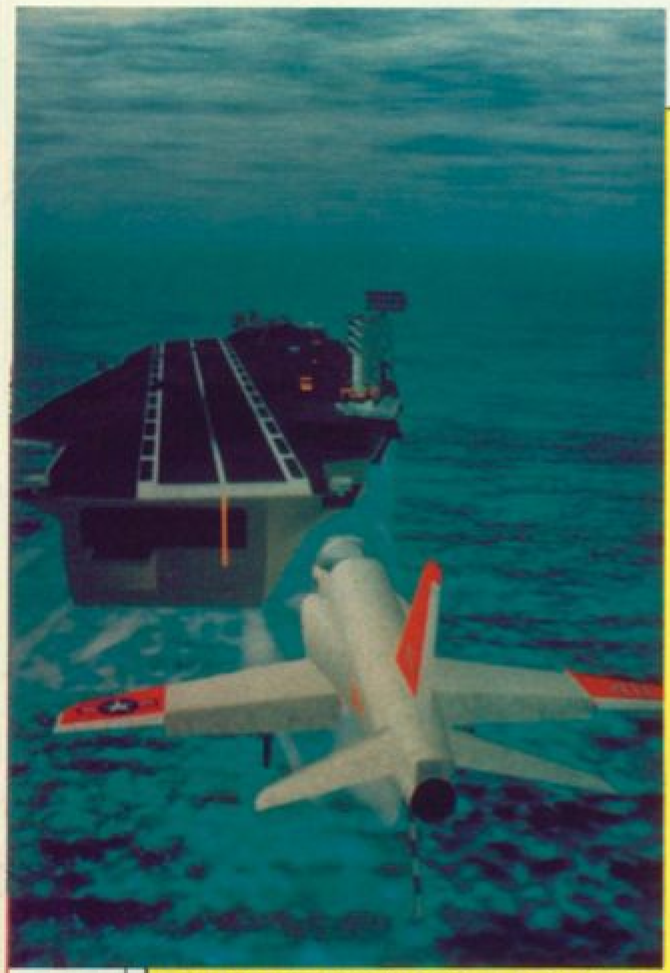
Spectrum Holobyte and their UK distributors Mirrorsoft are understandably cock-a-hoop over all this – after all, what better accolade for a flight sim than the Pentagon's seal of approval? – but there's far more to it than a publicity gimmick. The USAF reckon ASAT makes sound financial sense and, judging by trade interest at the Farnborough demo, they may not be the only ones. Why?

PRICEY PLANES

If you're a major air force in the market for

WHAT'S ASAT GOT THAT FALCON HASN'T?

- Fingertip weapon selection: you don't have to look down for the right control.
- Three monitors: you'll have to learn to divide your attention effectively.
- Tactile feedback: you can feel different power positions as you adjust the throttle.
- Extra networking: ASAT lets you fly anything from two-man formation exercises to a four-against-six air battle, complete with intercom links between 'team-members'.
- Instruction: an experienced flier's teaching can vastly improve your performance.
- Classified data: air forces can replace published equipment data with real-life limitations, failure rates or extra capabilities – information not normally available to software developers!
- Speech: throw the Falcon into a dive and you'll hear a female voice repeatedly urging you to pull up. (A gimmick perhaps, but not on ASAT's part: the voice is a genuine – and much derided – feature of real F-16s.)



The SP-X's big brother, the CT-6, is about as flash as simulators get. This one's of a US Navy T-45 Goshawk (alias the BAe Hawk) practising deck landings on the USS Nimitz.

THE FULL-PRICE ALTERNATIVE

This is the Novoview SP-X 500HT, one of the most powerful flight simulators in the world. It's built in Britain by Rediffusion, working in collaboration with the Evans & Sutherland Corporation of Salt Lake City, Utah, and it is just stunning. The technical specifications alone would knock a hardware freak's socks off, photographs could make grown computer artists weep, and neither of these can do the system justice at all.

Each 500HT image generator and projector can handle 500 polygons and 1000 calligraphic lights – more of those later – every 50th of a second. The key word here is 'each', because a typical 500HT set-up would use eight such generator/projector pairs, or 'channels' as they are properly known, all projecting onto one curved, mirrored screen. If this puts you in mind of composite-screen arcade games like *Darius*, you're thinking along the right lines – but on the wrong scale entirely, of course.

Each channel has a resolution of around 800 x 1000 pixels in rather more than 16 million colours. The programmer can only specify 255 of these at once, the remainder being used automatically in texturing and anti-aliasing. The combined effect of these two techniques is colossal.

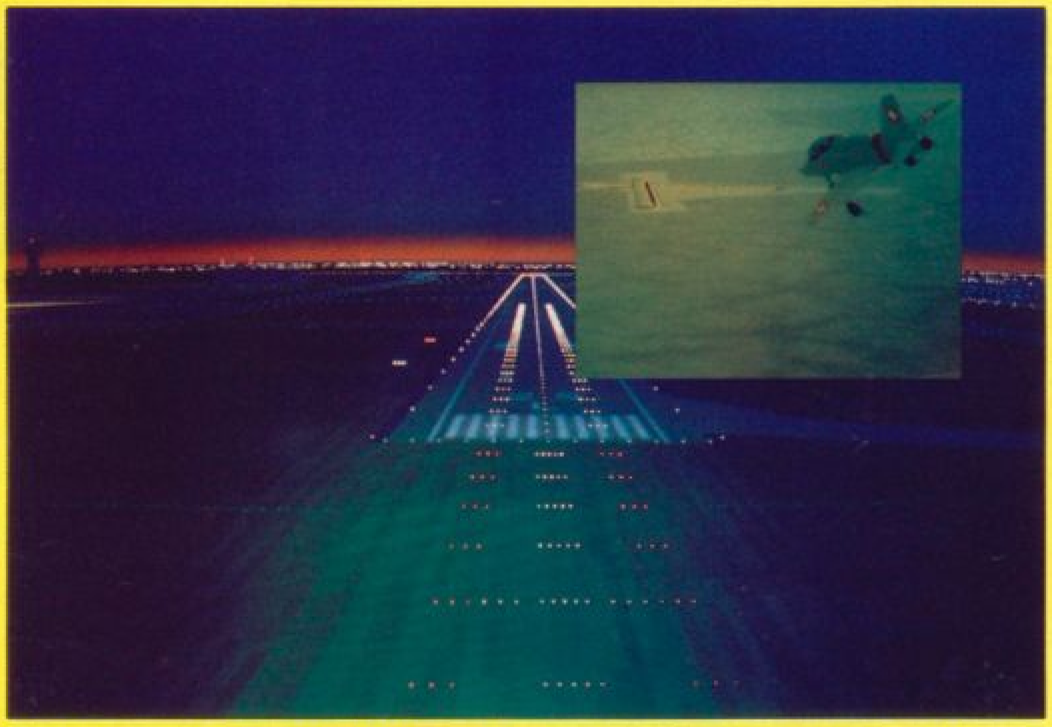
Every polygon can be textured in three different ways, one of them varying the transparency of the shape so that you can create atmospheric effects or the wakes of ships. What's more, textures are 'clamped' so that they fade with distance. There are solid reasons why this clamping is necessary, but in practice it looks like unashamed visual luxury. It creates a breathtaking sense of depth, an effect sometimes known as 'atmospheric perspective'.

The system's hardware anti-aliasing makes an even stronger impression, and no wonder: by clever gradations of colour it 'de-jags' polygon edges completely. This makes the channel's pixel count almost irrelevant, giving the finished image the 'infinite resolution' look of a TV picture.

In one sense the 500HT really is an infinite resolution device. Every 50th of a second, the projector's electron gun has a chunk of spare time left after drawing the raster image – the pixel screen discussed so far, that is. It uses this spare time to draw those 1000 lights mentioned earlier, plotting them on the screen vector-style. Because they're completely independent of the raster display, these 'calligraphic' lights are both accurately positioned and pin-sharp.

All of this would put the 500HT a long, long way ahead of current home machines, but its trump card probably sets it apart from conceivable ones too. No matter what high-resolution monitor you buy now, no matter what happens to TV standards in the forseeable future, you'll only ever get an image on a screen. The 500HT's image on the other hand is behind the screen, focussed at infinity. You don't look at the screen but through it, out into wide open skies and across sweeping landscapes. It's not true binocular 3D, but the difference is almost insignificant. Even though the screen on Rediffusion's Farnborough demonstration model was only 8ft away from the viewing point, the image looked miles deep.

Though a military SP-X system would set you back something like £2 million, there's still a pay-off for home users. It's only the vivid realism of dedicated hardware that has pushed home simulators this far, and there's no reason why the technology transfer shouldn't continue. With custom silicon falling in price the whole time, hardware texturing and anti-aliasing could be showing up on home micros in the not too distant future – and that'll be worth waiting for!



A civil SP-X generates the main runway of Frankfurt International airport here: notice the clarity of the calligraphic lights. (Inset) Another SP-X simulation of the BAe Hawk, this time for the Swiss Air Force (hence the snow scene).

STARS AT FARNBOROUGH

Mikoyan MiG 29 'Fulcrum' - star of Farnborough, arch-nasty in *Falcon AT*, and one extremely impressive aircraft in the flesh. If the authors of *Tetris* ever felt like writing a flight sim, they've got the perfect material here!

General Dynamics F-16 - also known as the *Falcon*, Fighting Falcon or Electric Jet, the F-16 is just about the most simulated plane ever. Spectrum Holobyte have SubLogic, Intellisoft and now Digital Integration for company in the Falcon sim market.

McDonnell Douglas F/A-18 - the star of Intellisoft's *F/A-18 Interceptor* also gets a supporting role in SubLogic's *Jet*, but the naval fighter-bomber's still in the F-16's shadow.

pilot training equipment, you'll need a pretty sizable budget. Gone are the days when a few Tiger Moths and a blackboard could turn rookies into aces. Modern jet trainer aircraft are very costly things, and not only to buy: maintenance is expensive too, not least in terms of the flying time it loses you.

Increasingly, air forces are turning to simulation as a way of cutting costs. Simulators are available more of the time, cost less to run and can set up landscape or weather conditions not easily accessible to training units. Unfortunately state-of-the-art simulators can cost millions of pounds, so they're by no means a bargain-basement alternative.

The thinking behind the ASAT is simple. Conventional simulators have concentrated on giving trainee pilots a wide-angle view and strong visual cues, so that they have the maximum possible information for exacting tasks like landing approaches or close-range air combat. The high-power, expensive hardware needed here may be cheap compared to a real aircraft, but – the reasoning goes – it's simply unnecessary for many areas of pilot training.

PRE-MERGE

Take the following scenario for example: you're ordered to scramble and engage incoming enemy aircraft. You climb to a height of 10,000 ft or so, and almost at once the bandits show up on your radar screen. They're still 40 miles away though, so even if you're heading straight for each other at maximum speed, you're at least a minute's flying time apart. What do you do now?

This phase of a mission, known as pre-merge or BVR (Beyond Visual Range) combat, is crucial. It's a time when the pilot's got a great deal to do reading instruments, preparing weapons systems and positioning his aircraft so as to gain a tactical advantage. It's also a time when visual cues and an all-round view are of very little use. Why spend £2 million on a terrific out-the-window view, when the trainee will be head-down most of the time anyway?

FEEDBACK

As far as *Falcon* fans are concerned, the ASAT could mean a great deal more than just official recognition of the game's realism. There's a very real prospect of added ASAT features carrying across into the home game. 'We'll certainly feed back anything that's non-classified,' claimed Spectrum Holobyte chief Gilman Louie.

For starters, the ASAT software is modular enough that alternative plane data can be substituted for F-16 and MiG vital statistics. With luck we'll see *Falcon*-based Apache helicopter and A-10 tankbuster simulators hitting the home market as a by-product of ASAT, and judging by trade interest at Farnborough it probably won't end there. With the phenomenal savings ASAT offers over conventional training hardware, we could well be treated to Mirage 2000s and Grumman Tiger Sharks in due course. Who knows, we may yet even see a MiG version!

Another feedback feature – and one especially close to our hearts here at ACE – is networking. Though *Falcon* is only a two-player game at most, prototype multi-player versions already exist. Not slow to see the potential here, Spectrum Holobyte are already in negotiations with two US online systems with a view to setting up a large scale *Falcon* network. (General Electric's GENie system already has something similar in the form of *Air Warrior*, but the terminal software there is strictly little-league in comparison.)

Gilman Louie sees going online as a natural extension of *Falcon*'s original design ideas. 'Our main aim was to provide targets with a lot of smarts. We wanted enemy pilots who didn't just fly along waiting for you to shoot them down, but came after you using realistic tactics. That way it's like real-life combat flying: you feel like you're going to die. With human opponents it's even better.' ●

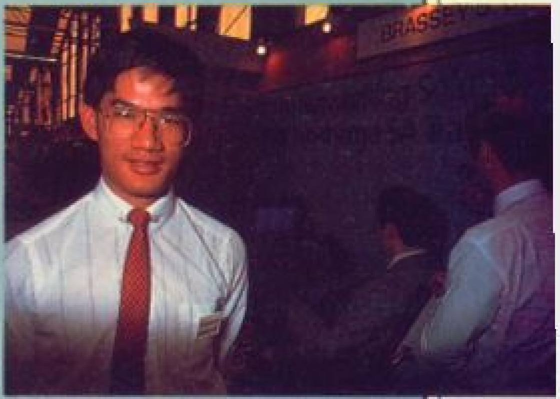
European Fighter Aircraft - the new multi-national fighter under development in the UK, West Germany, Spain and Italy, the EFA only appeared in mock-up from at Farnborough.

AN ASAT MISSION

You're sitting in a mocked up F-16 cockpit. In front of you is the forward cockpit and HUD (Head-Up Display) view, below that is the RWR (Radar Warning Receiver) screen and down between your knees is your own radar scope. On your right hand side is the plane's side stick – the equivalent of an old-fashioned joystick – while to your left is the throttle control. (These are real F-16 controls shipped over specially for the Farnborough ASAT demo, and their cost dwarfs the rest of the hardware with ease.)

Before you even try taking off, you'll need a first lesson in 'switchology'. Because your hands will normally rest on the stick and throttle, the most important controls (namely weapons!) are grouped there – but do you know which one's which? And more important, will you remember in the heat of battle? Co-ordinating the different controls as you close with and engage the enemy – 'playing the piccolo' in F-16 slang – is a tough job.

Now you're ready to go, pushing the throttle past 100% Military Power until the afterburners are fully on. 'Watch the HUD,' says Falcon creator Gilman Louie. 'As you reach 150 kts, pull back on the stick. You may find it easier to use the trim control.' Easing back on the trim using your right thumb – the control's on top of the stick – you pull clear of the runway.



Gilman Louie, author of *Falcon*, poses for ACE's cameras in front of the Perceptronics ASAT trainer. Currently flying is Tom Watson of Mirrorsoft, advised by experienced fighter pilot Phil Handley.

AIRBORNE

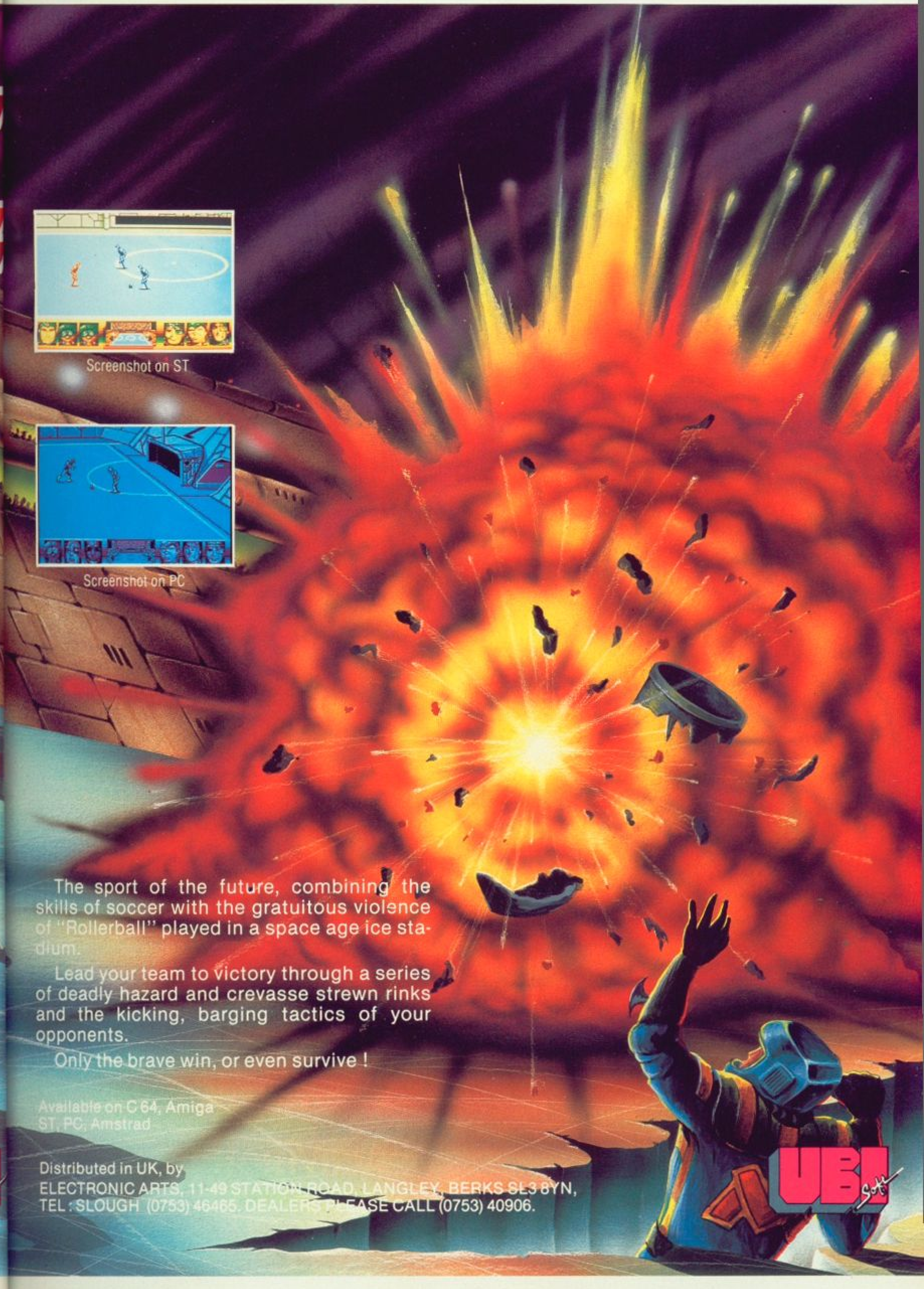
You let your speed rise to 350 kts, and then pull into a 30 degree climb until you've reached 10,000 ft or so. 'That's good: now roll to bring the nose down.' You stand the plane on one wingtip and sure enough, the nose dips onto the horizon. Why not just push the stick forward? 'No, you don't want to do that. You'd pull negative gees, and that's very uncomfortable,' explains Phil Handley of Perceptronics. 'By rolling out, you keep positive gees on you the whole time.' The man knows what he's talking about. With 7,000 flying hours on fast jets – and two MiGs to his credit, come to that – he ought to.

The MiGs are already visible on your RWR screen as you slide the throttle back to idle, and then forward again to 100% Military Power. There are three of them off to starboard and behind you, closing fast. You don't know it yet but they're all MiG 29s, the worst news ASAT has to offer. You throw the plane on one wingtip again and pull back on the stick, clawing round to face the enemy. 'Drop flares as you go,' advises Gilman Louie. That's left thumb on the defensive weapons button, and pull back, right? 'Keep dropping them till you're facing the MiGs. Okay, now level off and select Sidewinders.'

You shift your left thumb to the offensive weapons select, and push up. Your HUD switches obligingly to AIM-9L mode – the L's a powerful all-aspect missile, the 'Lima' in pilot-speak – and you're ready for action. Your right thumb now hovers nervously over the stick-mounted missile release button as the first of the 29s comes into view. And there you have it, pre-merge combat in a nutshell.

The startling thing about this is how utterly believable it all is. The screen images have all been produced by a PC, running Falcon-AT almost unmodified, but somehow the cockpit set-up and controls give ASAT a real air of solidity – like a sit-down arcade machine only more so. There are no hydraulics to simulate motion on ASAT, but Phil Handley's warning about negative G-force doesn't seem at all out of place. You take it at face value: this is serious stuff, and after a three-MiG mission you feel like you've really been through the wringer.

SKATEBALL
Screenshot on ST



Screenshot on ST

Screenshot on PC

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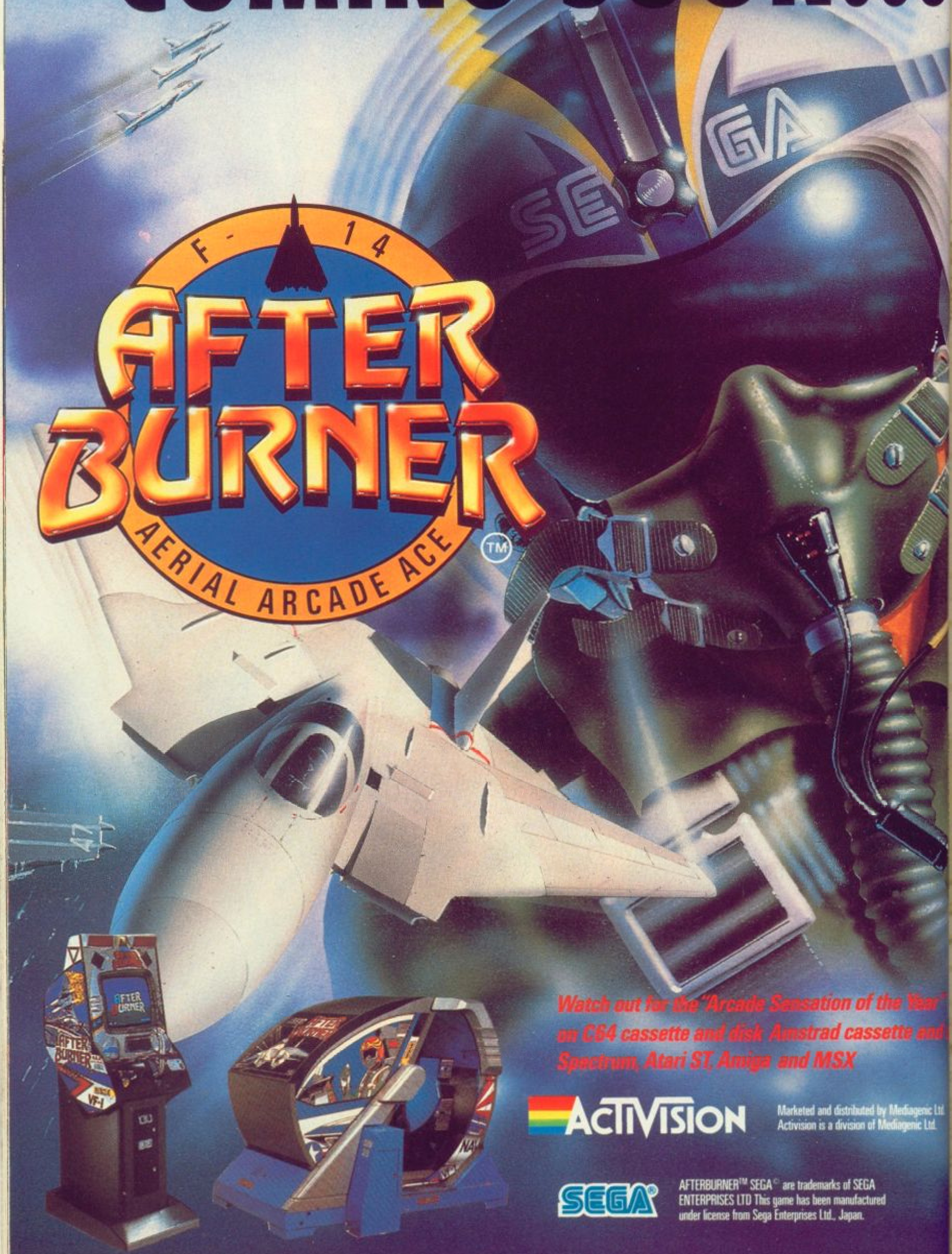
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THE ORIGIN OF SPECIES

Come with us now, as we delve back into the murky past of computer games – back to the days when a little white dot on the TV screen became more than just a sign that the BBC had closed down for the night. How and why have games progressed since then? How do you get from *Pong* to *Virus*, *Colossal Cave* to *Driller* – and what outside influences determined the course of game development?

So you're a games professional are you? You think you know all about the games industry and where the latest blockbusters originated? Well did you know that *Knight Lore* is a descendant of *Pacman*, or that *Starglider II* has close family ties with *'Asteroids*? Had it occured to you that *Renegade* was related to *Pong*, or that *Out Run* owes a lot to *Space Invaders* for its existence?

No! Well it's not surprising because the great games evolutionary tree is very complex and owes a lot to strokes of genius, unpredictable outside influences and impressive hardware developments. If you don't believe it then here are the family ties for a couple of the examples.

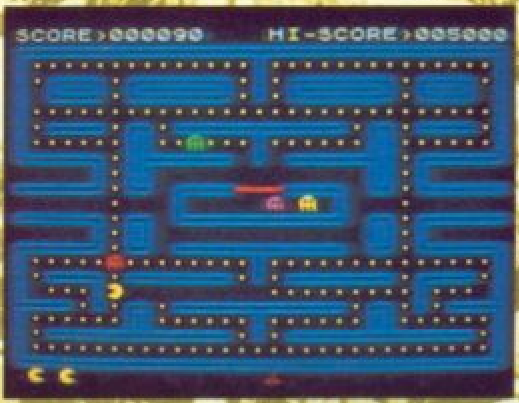
Pacman was a simple maze game derived from the exploration theme of adventures. If you mix in the multi-screen problem solving of a platform game with a maze game you get arcade adventures where you not only have to solve problems, but explore a mappable game area – like *Quo Vadis* and *Atic Atac*. Then all you have to do is toss in a bright idea from Ultimate for isometric 3D graphics and you've got *Knight Lore*.

Pong to *Renegade* is an even more unlikely idea. What possible connection is there between two bats and a ball and a violent beat-em-up? Well, bear in mind that *Pong* was the first ever sports simulation and the first simultaneous two-player game. Proper tennis and football simulations followed hard on its heels. Different sports were gradually perceived as possible as graphics improved – including karate. Next step is to take combat out of the simple one-to-one fight – influenced by kung-fu films and a violent society.

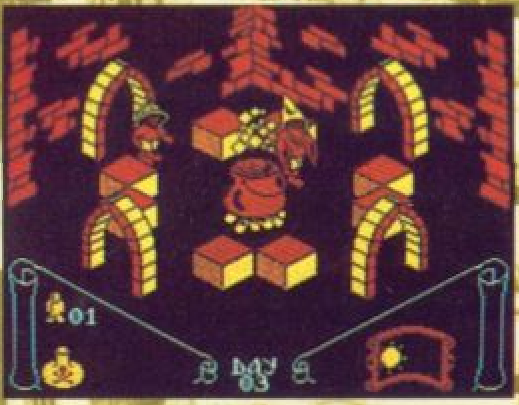
The evolutionary tree on the following pages shows the main influences that have resulted in the games we see today. The main trends are fairly clear, showing the strong lines of development. The parents of all computer games are mainframe computers and coin-op machines. At the bottom of the evolutionary scale are real 3D environments, the current hot favourites of the industry – games like *Driller*, *Starglider II* and *Carrier Command*.

Along the way the tree takes in all the big game genres: adventures – *Colossal Cave* and beyond, platform games – *Donkey Kong* to *Nebulus*, shoot-em-ups – *Space Invaders* and its scrolling derivatives, arcade adventures – *Sabre Wulf* and the rest of the exploratory puzzlers.

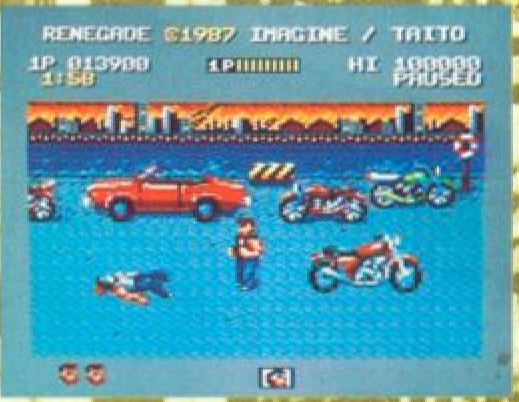
The evolutionary tree has also been significantly affected by hardware developments. Scrolling shoot-em-ups like *Uridium* were easier to write on the C64 because of its hardware scrolling and sprites. The Spectrum wasn't so good at that, but when it came to fast, detailed 3D it had the capability to produce excellent arcade adventures. The ST and Amiga can process enough information to make filled 3D a reality for all games that previously had to rely on vectors for speed. Increasing memories have also lead to ever larger and more detailed games – who could have dreamed of something like *Dungeon Master* a few years ago?



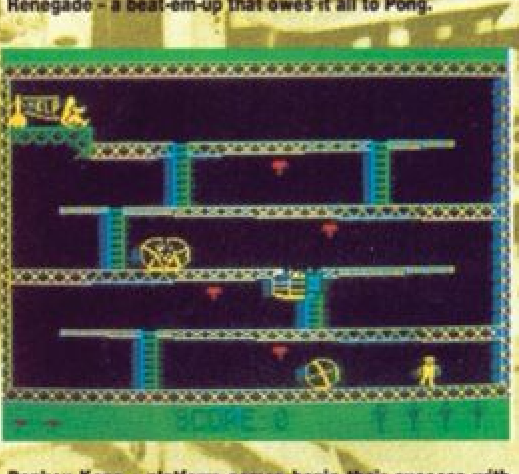
Pacman – maze games at their most addictive, this one on the Spectrum.



Knight Lore – the birth of isometric 3D.

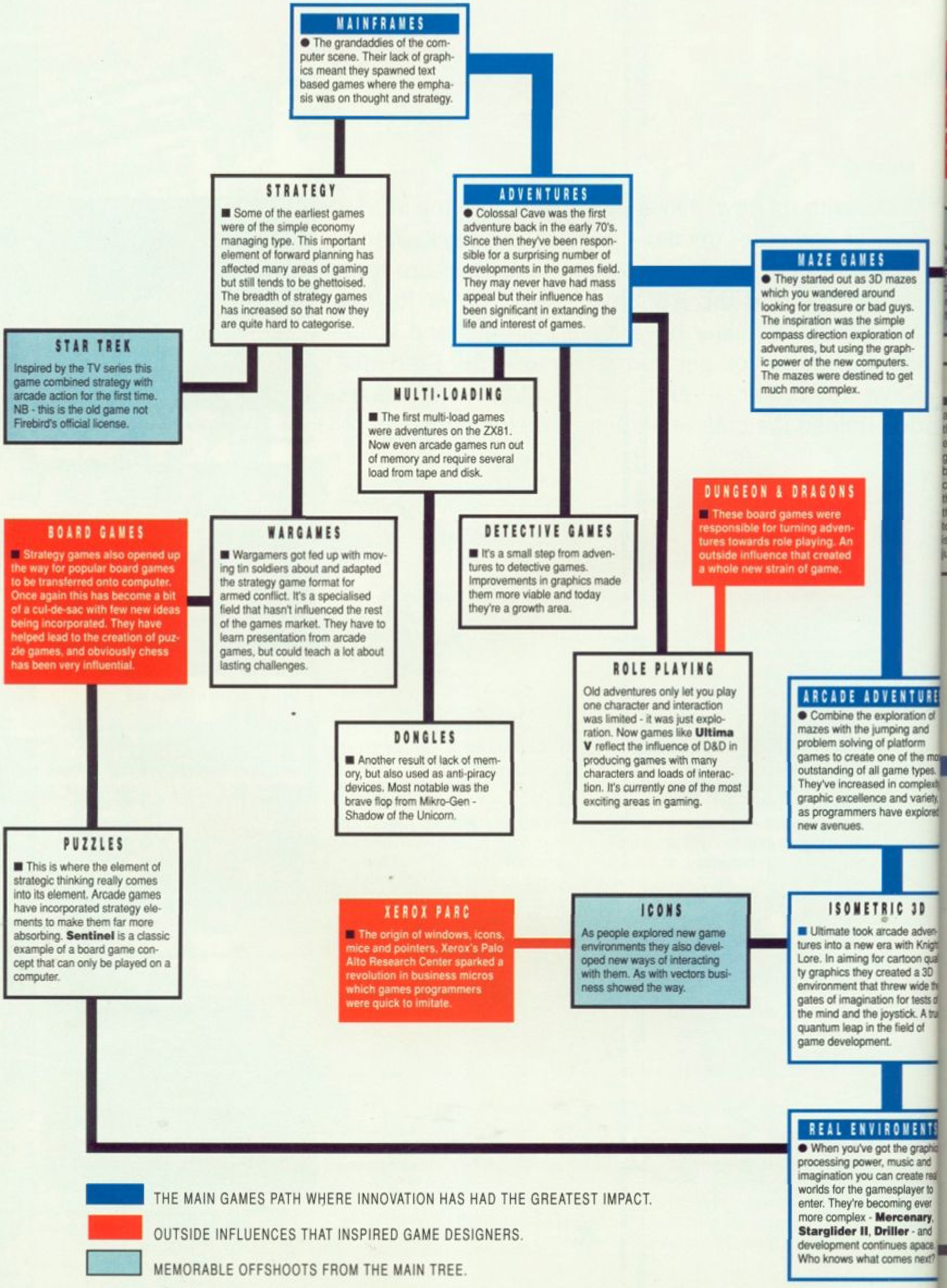


Renegade – a beat-em-up that owes it all to Pong.



Donkey Kong – platform games begin their success with this monster game. This one was called Monkey Bizness and ran on the Spectrum.

THE GREAT GAMES EVOLUTIONARY TREE



MAINFRAMES

● The grandaddies of the computer scene. Their lack of graphics meant they spawned text based games where the emphasis was on thought and strategy.

STRATEGY

■ Some of the earliest games were of the simple economy managing type. This important element of forward planning has affected many areas of gaming but still tends to be ghettoised. The breadth of strategy games has increased so that now they are quite hard to categorise.

ADVENTURES

● Colossal Cave was the first adventure back in the early 70's. Since then they've been responsible for a surprising number of developments in the games field. They may never have had mass appeal but their influence has been significant in extanding the life and interest of games.

MAZE GAMES

● They started out as 3D mazes which you wandered around looking for treasure or bad guys. The inspiration was the simple compass direction exploration of adventures, but using the graphic power of the new computers. The mazes were destined to get much more complex.

STAR TREK

Inspired by the TV series this game combined strategy with arcade action for the first time. NB - this is the old game not Firebird's official license.

MULTI-LOADING

■ The first multi-load games were adventures on the ZX81. Now even arcade games run out of memory and require several load from tape and disk.

BOARD GAMES

■ Strategy games also opened up the way for popular board games to be transferred onto computer. Once again this has become a bit of a cul-de-sac with few new ideas being incorporated. They have helped lead to the creation of puzzle games, and obviously chess has been very influential.

WARGAMES

■ Wargamers got fed up with moving tin soldiers about and adapted the strategy game format for armed conflict. It's a specialised field that hasn't influenced the rest of the games market. They have to learn presentation from arcade games, but could teach a lot about lasting challenges.

DETECTIVE GAMES

■ It's a small step from adventures to detective games. Improvements in graphics made them more viable and today they're a growth area.

DUNGEON & DRAGONS

■ These board games were responsible for turning adventures towards role playing. An outside influence that created a whole new strain of game.

ROLE PLAYING

Old adventures only let you play one character and interaction was limited - it was just exploration. Now games like **Ultima V** reflect the influence of D&D in producing games with many characters and loads of interaction. It's currently one of the most exciting areas in gaming.

ARCADE ADVENTUR

● Combine the exploration of mazes with the jumping and problem solving of platform games to create one of the mo outstanding of all game types. They've increased in complexi graphic excellence and variety, as programmers have explore new avenues.

DONGLES

■ Another result of lack of memory, but also used as anti-piracy devices. Most notable was the brave flop from Mikro-Gen - Shadow of the Unicorn.

PUZZLES

■ This is where the element of strategic thinking really comes into its element. Arcade games have incorporated strategy elements to make them far more absorbing. **Sentinel** is a classic example of a board game concept that can only be played on a computer.

XEROX PARC

■ The origin of windows, icons, mice and pointers, Xerox's Palo Alto Research Center sparked a revolution in business micros which games programmers were quick to imitate.

ICONS

As people explored new game environments they also developed new ways of interacting with them. As with vectors business showed the way.

ISOMETRIC 3D

■ Ultimate took arcade adventures into a new era with Knigh Lore. In aiming for cartoon qual ty graphics they created a 3D environment that threw wide th gates of imagination for tests o the mind and the joystick. A tru quantum leap in the field of game development.

REAL ENVIROMENT

● When you've got the graphic processing power, music and imagination you can create rea worlds for the gamesplayer to enter. They're becoming ever more complex - **Mercenary**, **Starglider II**, **Driller** - and development continues apace. Who knows what comes next?

- 🟦 THE MAIN GAMES PATH WHERE INNOVATION HAS HAD THE GREATEST IMPACT.
- 🟥 OUTSIDE INFLUENCES THAT INSPIRED GAME DESIGNERS.
- ▨ MEMORABLE OFFSHOOTS FROM THE MAIN TREE.

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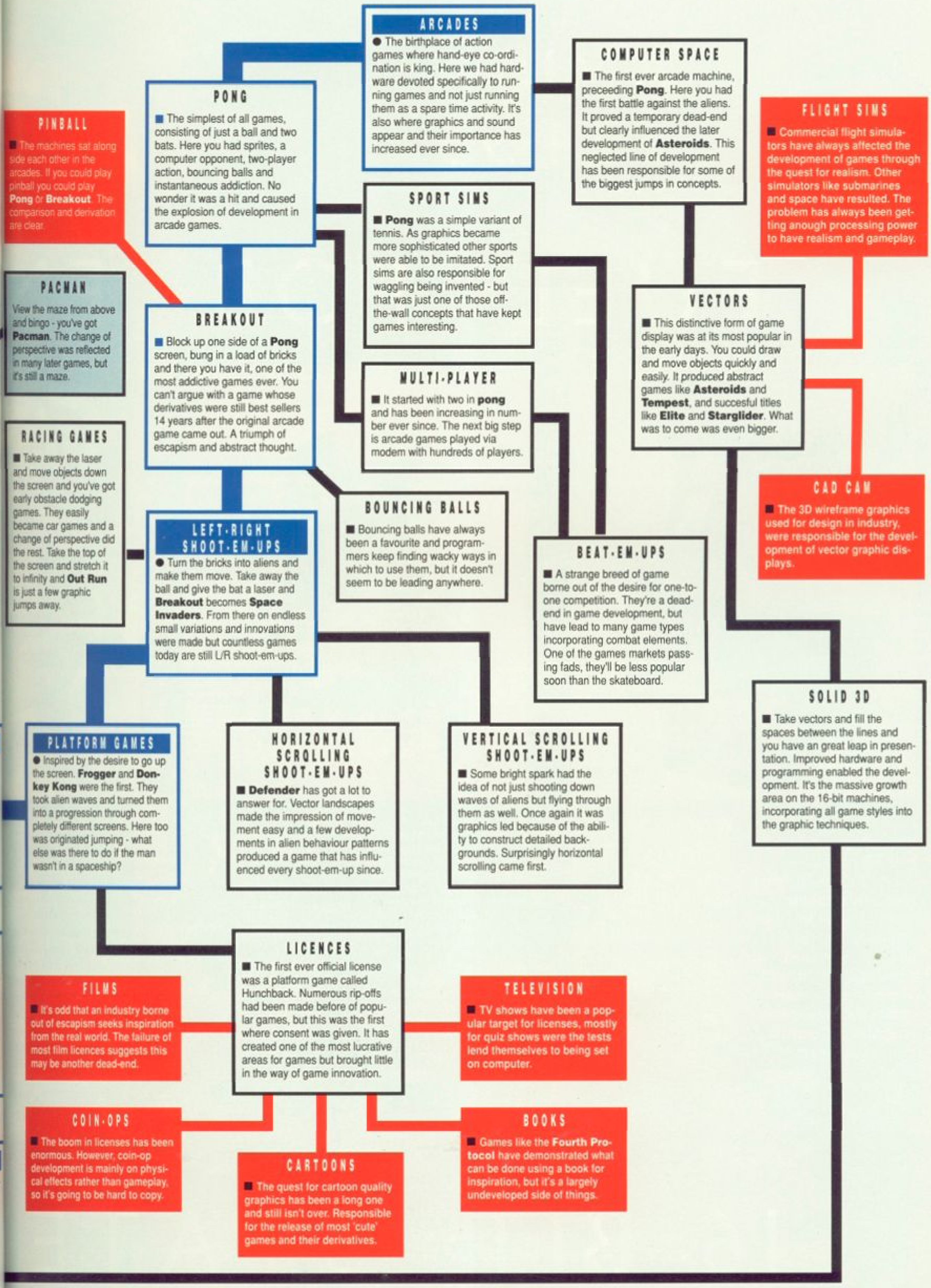

ARCADES

● The birthplace of action games where hand-eye co-ordination is king. Here we had hardware devoted specifically to running games and not just running them as a spare time activity. It's also where graphics and sound appear and their importance has increased ever since.

COMPUTER SPACE

■ The first ever arcade machine, preceeding **Pong**. Here you had the first battle against the aliens. It proved a temporary dead-end but clearly influenced the later development of **Asteroids**. This neglected line of development has been responsible for some of the biggest jumps in concepts.

PINBALL

■ The machines sat along side each other in the arcades. If you could play pinball you could play **Pong** or **Breakout**. The comparison and derivation are clear.

PONG

■ The simplest of all games, consisting of just a ball and two bats. Here you had sprites, a computer opponent, two-player action, bouncing balls and instantaneous addiction. No wonder it was a hit and caused the explosion of development in arcade games.

SPORT SIMS

■ **Pong** was a simple variant of tennis. As graphics became more sophisticated other sports were able to be imitated. Sport sims are also responsible for waggling being invented - but that was just one of those off-the-wall concepts that have kept games interesting.

FLIGHT SIMS

■ Commercial flight simulators have always affected the development of games through the quest for realism. Other simulators like submarines and space have resulted. The problem has always been getting anough processing power to have realism and gameplay.

PACMAN

View the maze from above and bingo - you've got **Pacman**. The change of perspective was reflected in many later games, but it's still a maze.

BREAKOUT

■ Block up one side of a **Pong** screen, bung in a load of bricks and there you have it, one of the most addictive games ever. You can't argue with a game whose derivatives were still best sellers 14 years after the original arcade game came out. A triumph of escapism and abstract thought.

MULTI-PLAYER

■ It started with two in **pong** and has been increasing in number ever since. The next big step is arcade games played via modem with hundreds of players.

VECTORS

■ This distinctive form of game display was at its most popular in the early days. You could draw and move objects quickly and easily. It produced abstract games like **Asteroids** and **Tempest**, and succesful titles like **Elite** and **Starglider**. What was to come was even bigger.

RACING GAMES

■ Take away the laser and move objects down the screen and you've got early obstacle dodging games. They easily became car games and a change of perspective did the rest. Take the top of the screen and stretch it to infinity and **Out Run** is just a few graphic jumps away.

BOUNCING BALLS

■ Bouncing balls have always been a favourite and programmers keep finding wacky ways in which to use them, but it doesn't seem to be leading anywhere.

CAD CAM

■ The 3D wireframe graphics used for design in industry, were responsible for the development of vector graphic displays.

LEFT-RIGHT SHOOT-EM-UPS

● Turn the bricks into aliens and make them move. Take away the ball and give the bat a laser and **Breakout** becomes **Space Invaders**. From there on endless small variations and innovations were made but countless games today are still L/R shoot-em-ups.

BEAT-EM-UPS

■ A strange breed of game borne out of the desire for one-to-one competition. They're a dead-end in game development, but have lead to many game types incorporating combat elements. One of the games markets passing fads, they'll be less popular soon than the skateboard.

SOLID 3D

■ Take vectors and fill the spaces between the lines and you have an great leap in presentation. Improved hardware and programming enabled the development. It's the massive growth area on the 16-bit machines, incorporating all game styles into the graphic techniques.

PLATFORM GAMES

● Inspired by the desire to go up the screen. **Frogger** and **Donkey Kong** were the first. They took alien waves and turned them into a progression through completely different screens. Here too was originated jumping - what else was there to do if the man wasn't in a spaceship?

HORIZONTAL SCROLLING SHOOT-EM-UPS

■ **Defender** has got a lot to answer for. Vector landscapes made the impression of movement easy and a few developments in alien behaviour patterns produced a game that has influenced every shoot-em-up since.

VERTICAL SCROLLING SHOOT-EM-UPS

■ Some bright spark had the idea of not just shooting down waves of aliens but flying through them as well. Once again it was graphics led because of the ability to construct detailed backgrounds. Surprisingly horizontal scrolling came first.

LICENCES

■ The first ever official license was a platform game called Hunchback. Numerous rip-offs had been made before of popular games, but this was the first where consent was given. It has created one of the most lucrative areas for games but brought little in the way of game innovation.

FILMS

■ It's odd that an industry borne out of escapism seeks inspiration from the real world. The failure of most film licences suggests this may be another dead-end.

TELEVISION

■ TV shows have been a popular target for licenses, mostly for quiz shows were the tests lend themselves to being set on computer.

COIN-OPS

■ The boom in licenses has been enormous. However, coin-op development is mainly on physical effects rather than gameplay, so it's going to be hard to copy.

BOOKS

■ Games like the **Fourth Protocol** have demonstrated what can be done using a book for inspiration, but it's a largely undeveloped side of things.

CARTOONS

■ The quest for cartoon quality graphics has been a long one and still isn't over. Responsible for the release of most 'cute' games and their derivatives.

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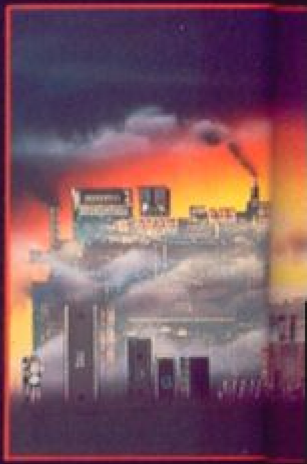

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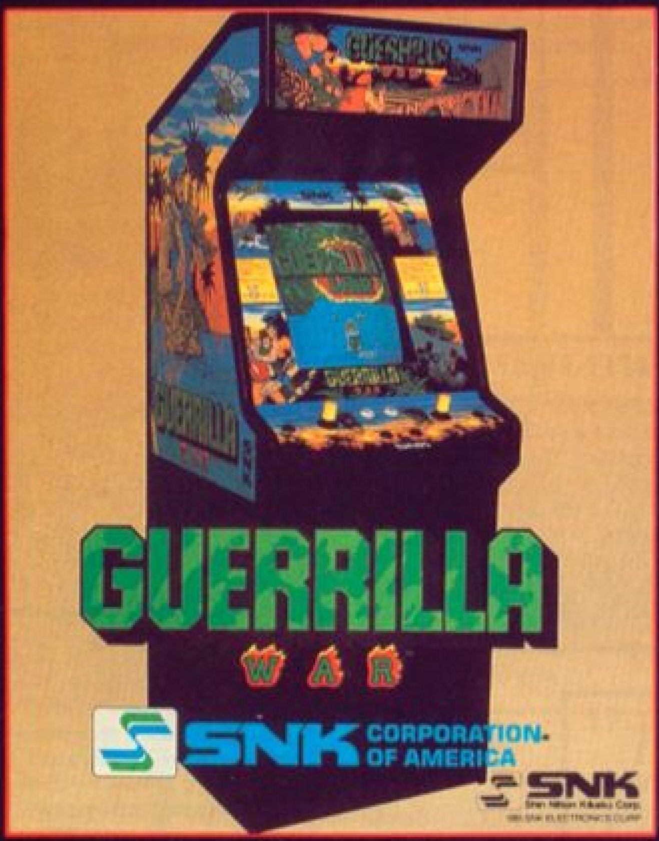
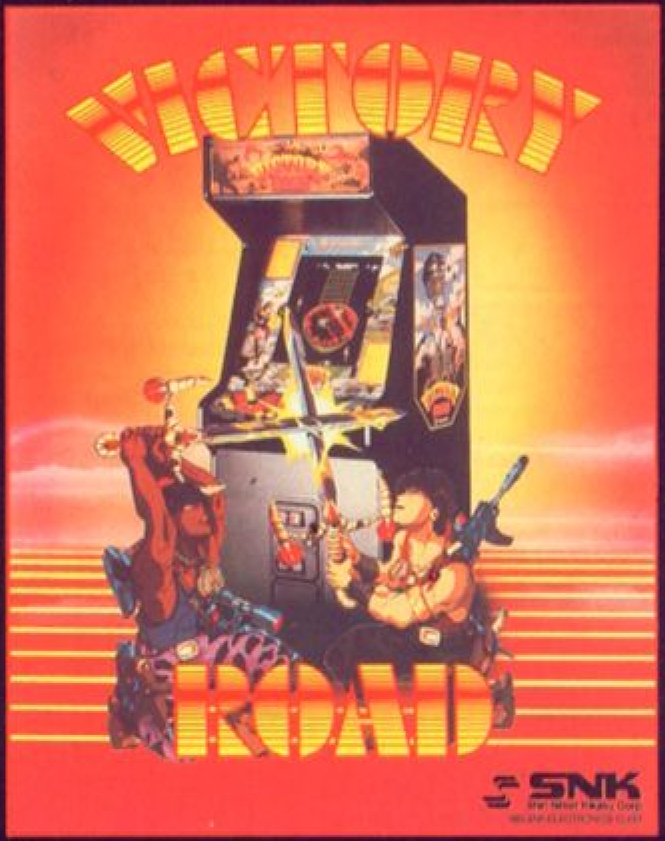


From the SNK stable, the coin-op smash hit now for your home micro. This multi-level, vertically scrolling arcade thriller throws you deep into the jungles and ruined cities of a nation held in the grip of a cruel oppressor. Freedom is your aim ... Guerrilla War is the means!

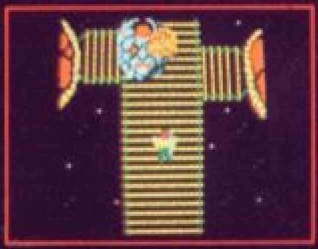
© 1986 SNK
ELECTRONICS CORP.

FROM

..the name
of the game



This is where the fun really begins. You will meet vampires, two and three headed monsters – the head will fly at you on its own, just when you think you are gaining the upper hand. Trapdoors and elevators transport you – sometimes to your surprise – inside ancient buildings and under lakes and oceans. Build up the firepower necessary to fight off your aggressors. Action and excitement all the way with this macabre and unusual game; which has that elusive extra something to keep you coming back for more.



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FROM

..the name
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Play Green Beret and
you'll get some idea o
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must succeed against
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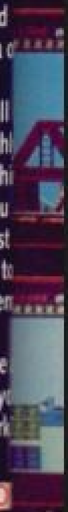

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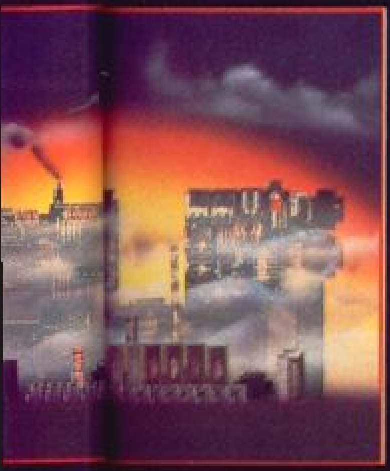

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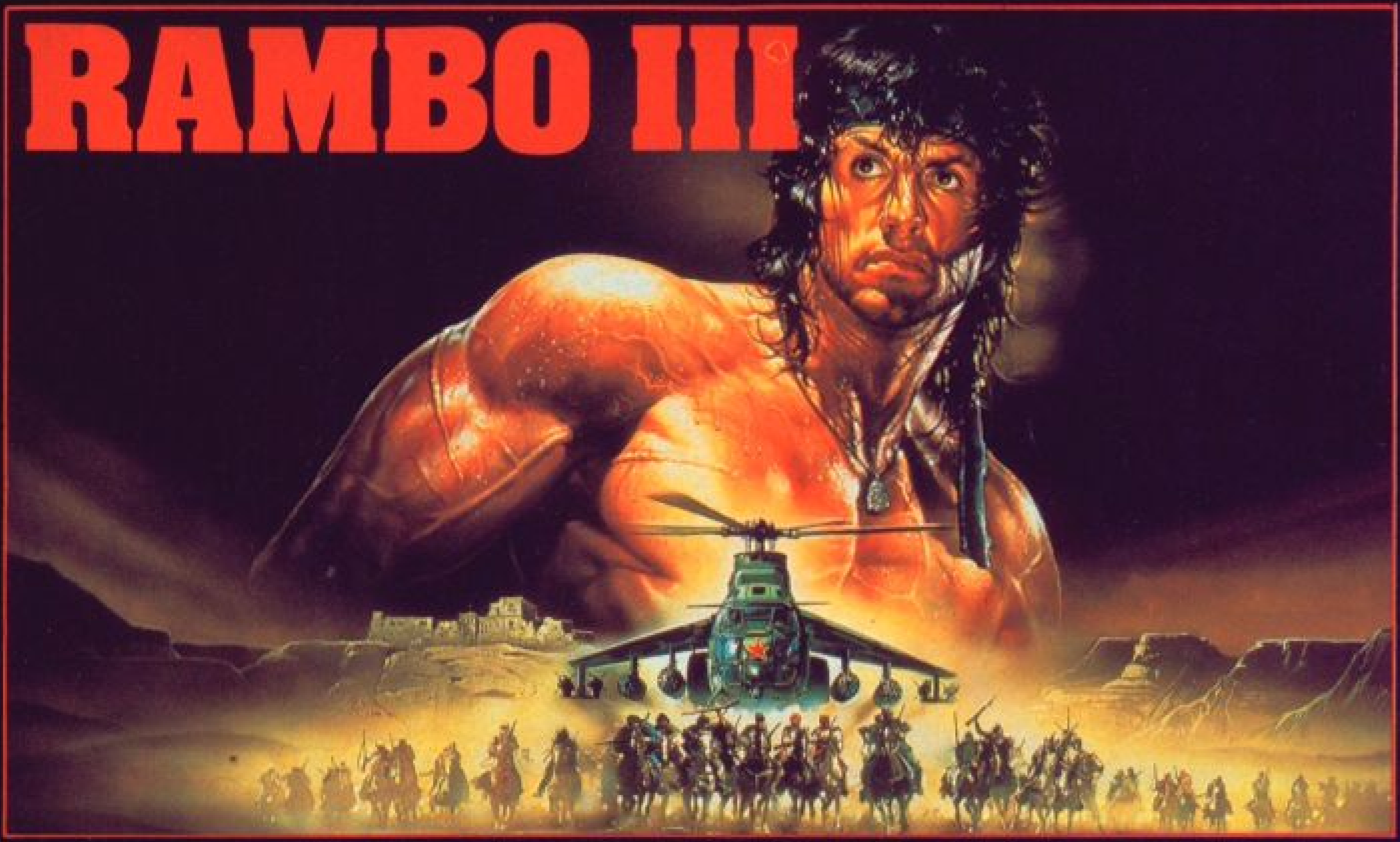

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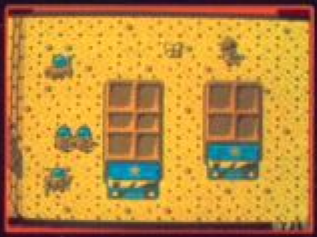
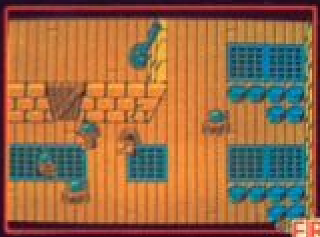
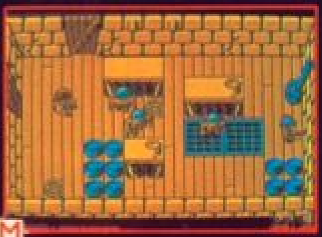
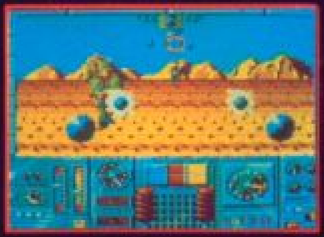
He's back and this time he's taking no prisoners. Colonel Trautman has been captured by the Russians in Afghanistan and there is only one person capable of freeing him. Negotiate the minefields, explore the Russian camp, lay boobytraps, avoid detection, free the Colonel and then ... move on to the explosive climax! RAMBO IS BACK!

Rambo III T.M. & © 1988 CARLOCO PICTURES INC. All Rights Reserved.









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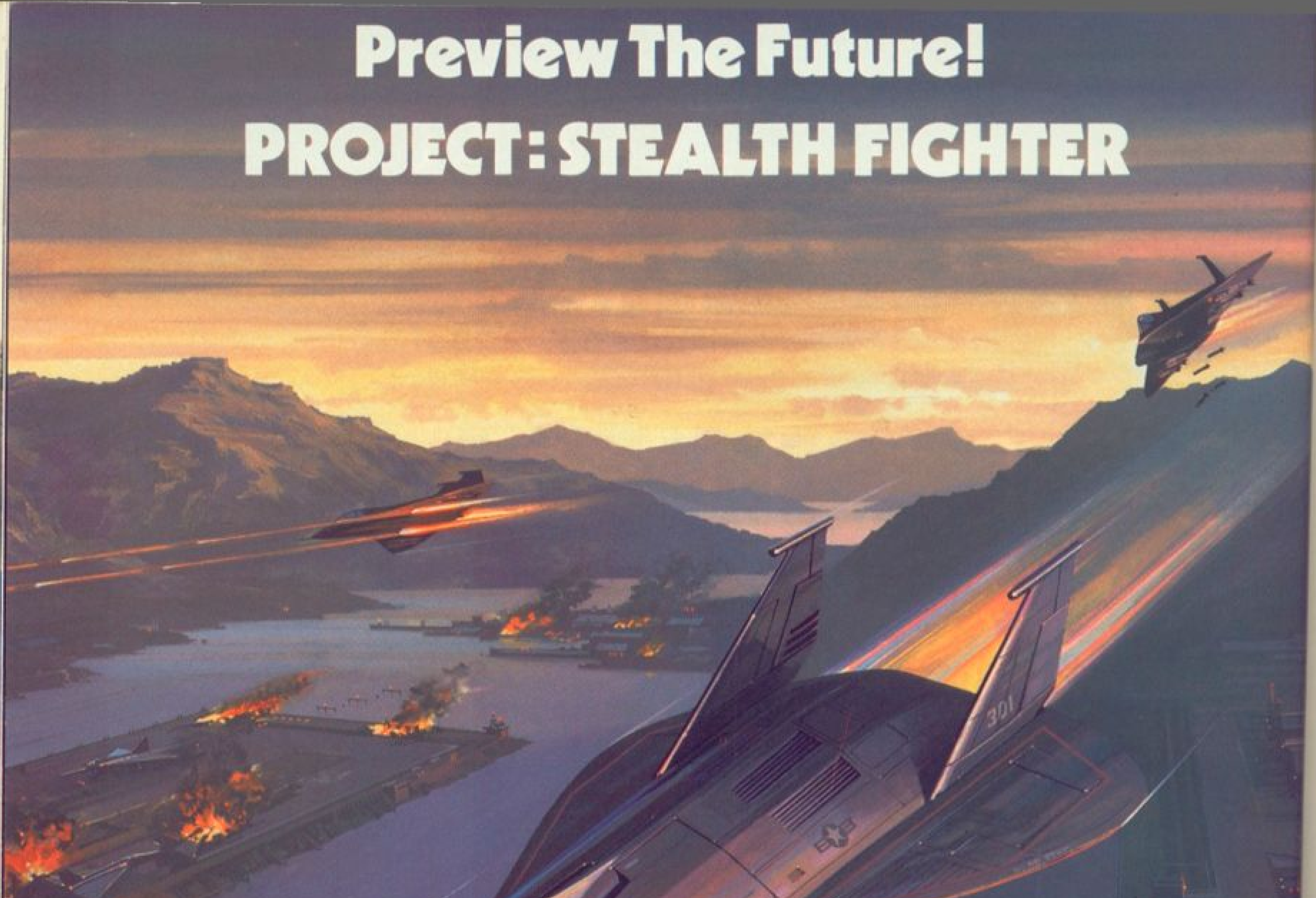
Preview The Future!

PROJECT: STEALTH FIGHTER



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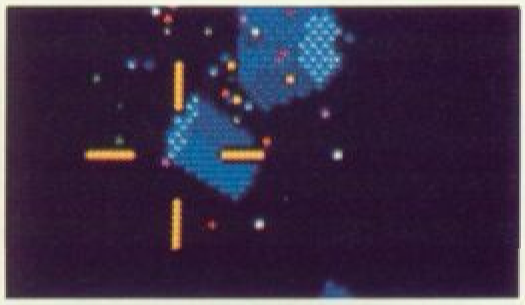
SCREEN TEST

The postal strike did its best to stop all those gorgeous games getting through to us. However, by hook or by crook – but mostly by courier – everything got here.

The star performers are two updates – one of which is all of four years old in its original form. ***Elite*** has been giving gameplayers sleepless nights for all that time and now it's going to do the same for ST owners. **EGA *Falcon*** on the PC takes combat flight sims to new heights of realism. It's so good that it's even got the approval of the Pentagon, who are using it in fighter pilot training.

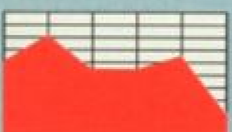
There's a plethora of hot new games as well. ***Heroes of the Lance*** marks the start of the official *Advanced Dungeons and Dragons* games. If its surrealism you're after then check two sizzling new releases from Imageworks – ***Speedball*** and ***Foxx Fights Back.*** ***Speedball*** is a future sport dreamed up and programmed by the Bitmap Brothers, while ***Foxx*** is a story of a put-upon fox who turns into a woodland *Rambo.*

Then of course there's ***Red Storm Rising,*** a cracking sub sim; Andrew Braybrook's latest, ***Intensity;*** plus ***Soldier of Fortune...*** if this keeps up we'll have to double the size of Screen Test when the post comes through again.



THE RATINGS

HOW they're calculated...



If you buy a game, how much enjoyment will you get out of it, and for how long? Just check out our revolutionary PIC (Predicted Interest Curve) for the full story. Brilliant arcade games start high on the curve, and then steadily tail off as you lose interest; powerful puzzle games may ride the crest of the curve for months – but the moment you solve them they'll come tumbling down; complex strategy games may stump you at first – but climb up the scale as you begin to appreciate the scope of the gameplay. And as for the turkeys – they start low, stay low, and have nowhere to go but down, down, down.

Once you've seen how long the game can hold your attention, all you need to glance at is the renowned ACE RATING. This is calculated according to the area under the PIC. The bigger it is, the better the game. Add to that our definitive ratings for IQ Factor (will it give your brain cells a work-out?) and Fun Factor – a measure of instant appeal and exhilaration as you dive into the game. And, of course, we rate the Graphics and Audio effects too...for EVERY machine the game's available on.

WHY you can rely on them...

The ACE reviewing team covers a broad spectrum of computer entertainment talent. Andy Wilton – ACE's resident technical wizz – is as handy with a smart bomb as he is with hexadecimal. Andy Smith wouldn't know hexadecimal from a hole in the ground, but can wipe the floor with any number of aliens. Rod Lawton prefers to reason with aliens – *then* shoot them. Bob Wade (ex-Personal Computer Games, Zzap!64 and Amstrad Action) has played more computer games than any sane person ought to. Add Steve Cooke (ex-PCG and formerly columnist for magazines ranging from Zzap!64 to Your Sinclair) and you've got age and experience as well as youthful enthusiasm.

Every game on the following pages has been seen by all of us. We compare notes, express differing opinions, and only then do we decide who's to take final responsibility for getting our views into print. What follows, then, isn't just a collection of casual comments, but the definitive ACE verdict on this month's software. We've checked it out – now you can too.

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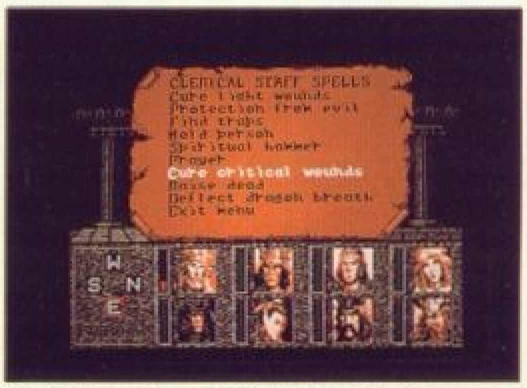
HEROES OF THE LANCE

SSI hook and slash the monsters

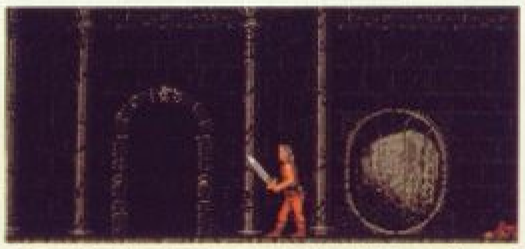
DUNGEONS *and Dragons* has been mightily popular in its board game form. Many other attempts at role playing games have also appeared, notably *Dungeon Master* and the *Ultima* series. However, this is the first of the official *Advanced Dungeons & Dragons* games – giving it quite a pedigree to live up to.

The first thing that has to be said is that this isn't really a role-playing game (RPG). There are strong role-playing elements, but the emphasis is on animated arcade action. You control a team of eight characters who have to venture into the ruins of Xak Tsaroth to retrieve the Disks of Mishakal. The disks are guarded by a dragon called Khisanth. Before you get to deal with him though there's a lot of exploring and minion-battling to do.

Your party of eight has many differing and essential skills that are needed on the journey. Raistlin is a mage and has some very helpful spells when dealing with monsters. Goldmoon also has magical powers, most importantly her ability to resurrect other characters and cure wounds. The rest of the team have no particular special powers but are skilled in different types of fighting.



When Goldmoon is one of the first four characters you can access the Clerical Staff spells. Here you're about to use the cure critical wounds spell on the injured lead character Tanis.



The party has taken heavy losses which won't be easy to recover from. Just to the right of the leader, Riverwind, is a portal which takes you to a new section of the game. To the right of that is the body of one of your colleagues. If you leave him their the grey picture at the bottom right of the display will become a gravestone and you'll never be able to ressurect him.

For fighting at a distance the team carries bows, a spear, axe and sling. For close combat they mostly use swords, but those armed with just staffs are more vulnerable to attack. The ranged weapons are useful for avoiding taking any damage, but they are limited in their ammo supply and therefore need to be used sparingly.

The party is split into two groups of four. On the screen you will always see just one lead character, but the first four characters will take damage in any fighting. You also need to have magic users in the first four if you want to be able to use their skills in battle.

Character swapping, spell selection, object manipulation and saving the game are all handled from a menu system. When this is called up it pauses the action – very handy for switching the lead characters around and casting spells in the middle of a fight. The objects that can be picked up include scrolls to provide extra spells, potions for healing and additional strength, replacement quivers of arrows and treasures for cashing in at the end of the game.

The monsters you'll encounter vary in their attack patterns and effect. Dragons and

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ATARI ST VERSION

The characters and animation are excellent. The background scenery is atmospheric, but it's also rather dull. These may be ruins but they could have made them a bit more colourful. During fights you get good sound effects – 'ughs' and 'arrghs'. There's not much else apart from that though. The only annoying thing you'll find is that the game comes on three disks, so a certain amount of swapping is required. Fortunately this is mostly between games rather than during them.

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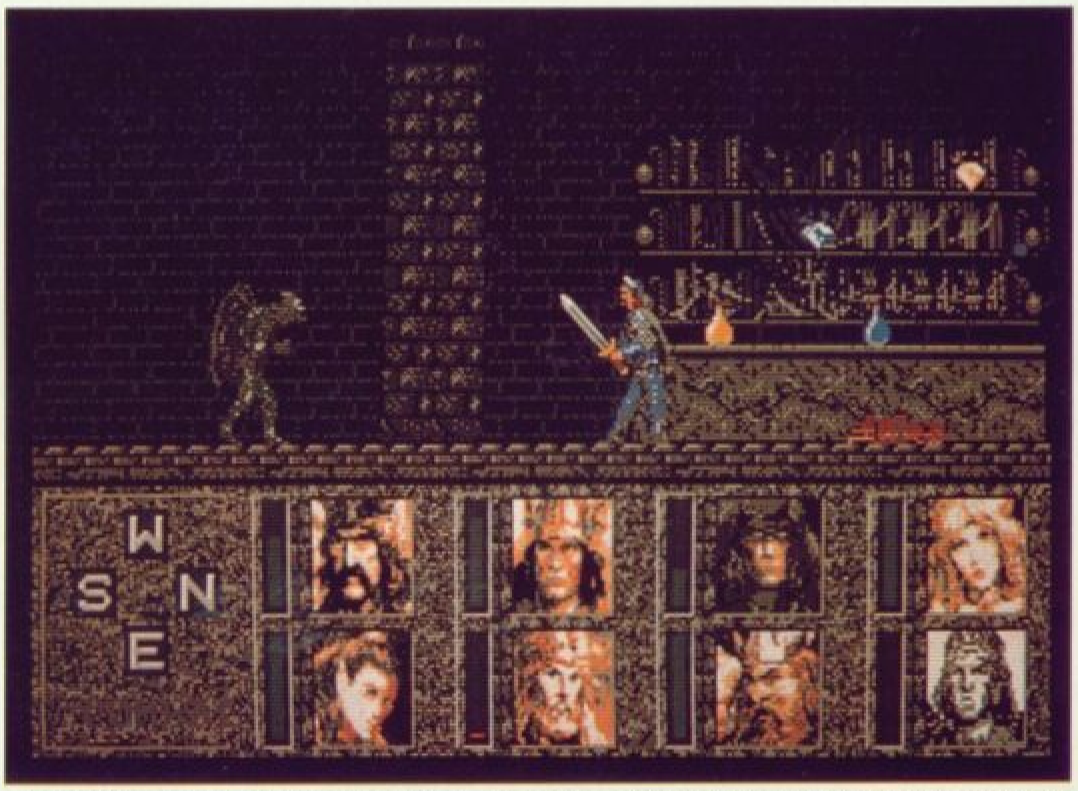
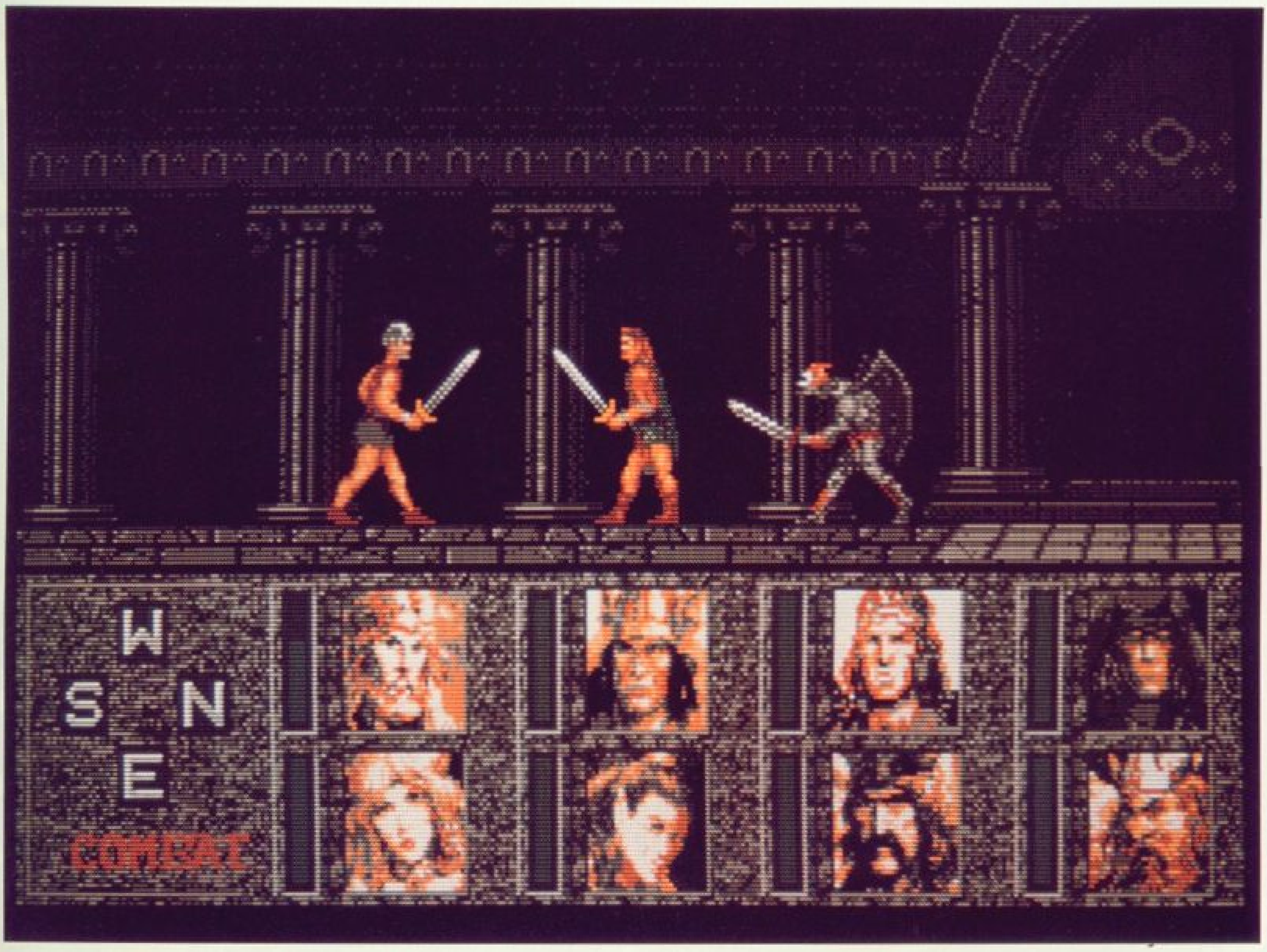
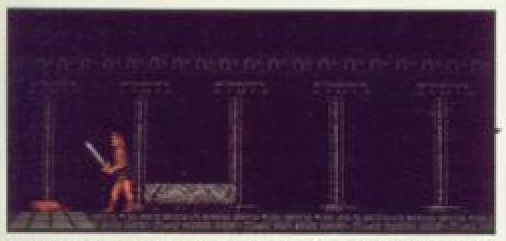
ACE RATING 844



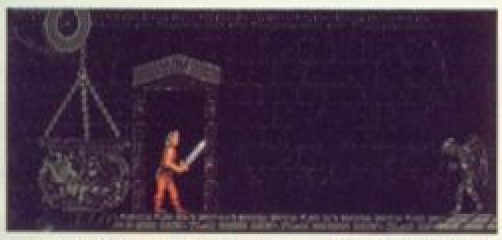
That Bozak Draconian on the left is a real pain because he can shoot missiles at you. It's well worth taking him out though, in order to get at the coloured potions and gems on the shelves to the right.



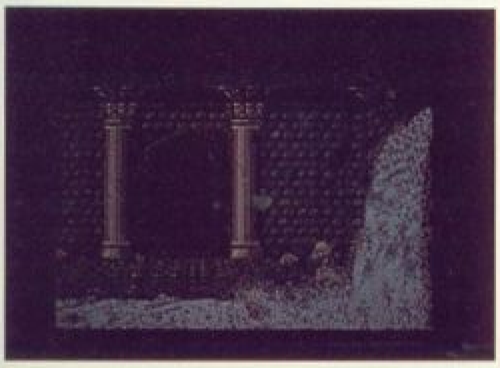
(Above) You've got a problem here because monsters are coming in from both sides - a man from the left and a Baaz Draconian from the right.



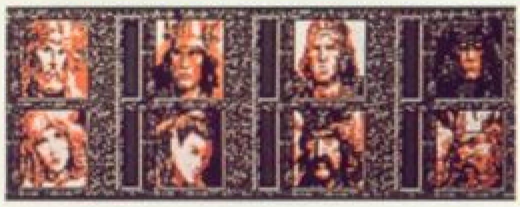
In your haste to get to the scroll on the left of the screen, you've set off a trap which dropped a large stone block on your head.



Sturm Brightblade is now leading the party, which has lost two members after an attack by a Bozak Draconian on the left of the screen. The characters can still be resurrected at this point, their bodies and possessions are lying by Sturm.



If you can find this delightful waterfall it will heal the wounds of all your characters.



(Right) The eight picture boxes have a gauge next to them indicating the number of hit points a character has left. The top four characters take damage in a fight, the one at top left is actually shown on the screen.

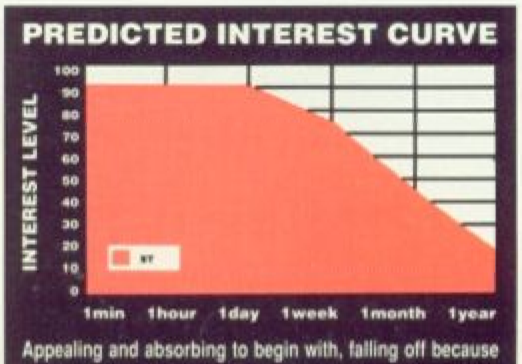
Bozak Draconians are the most dangerous because they have ranged weapons which can inflict great damage on you. When dealing with them it's best to either run away or take them out quick. Beware too of using too much magic when fighting these guys, because you'll need it for more important things later.

Trolls are also bad news because when they get up close they can give you a terrible mauling. The rest of the opponents like men, giant spiders, spectral minions, gully dwarves and wraiths shouldn't cause many problems if you've got a decent swordsman out front, unless they arrive mob-handed. If in doubt run away – it's crucial you don't lose characters or use too much magic getting them healthy again.

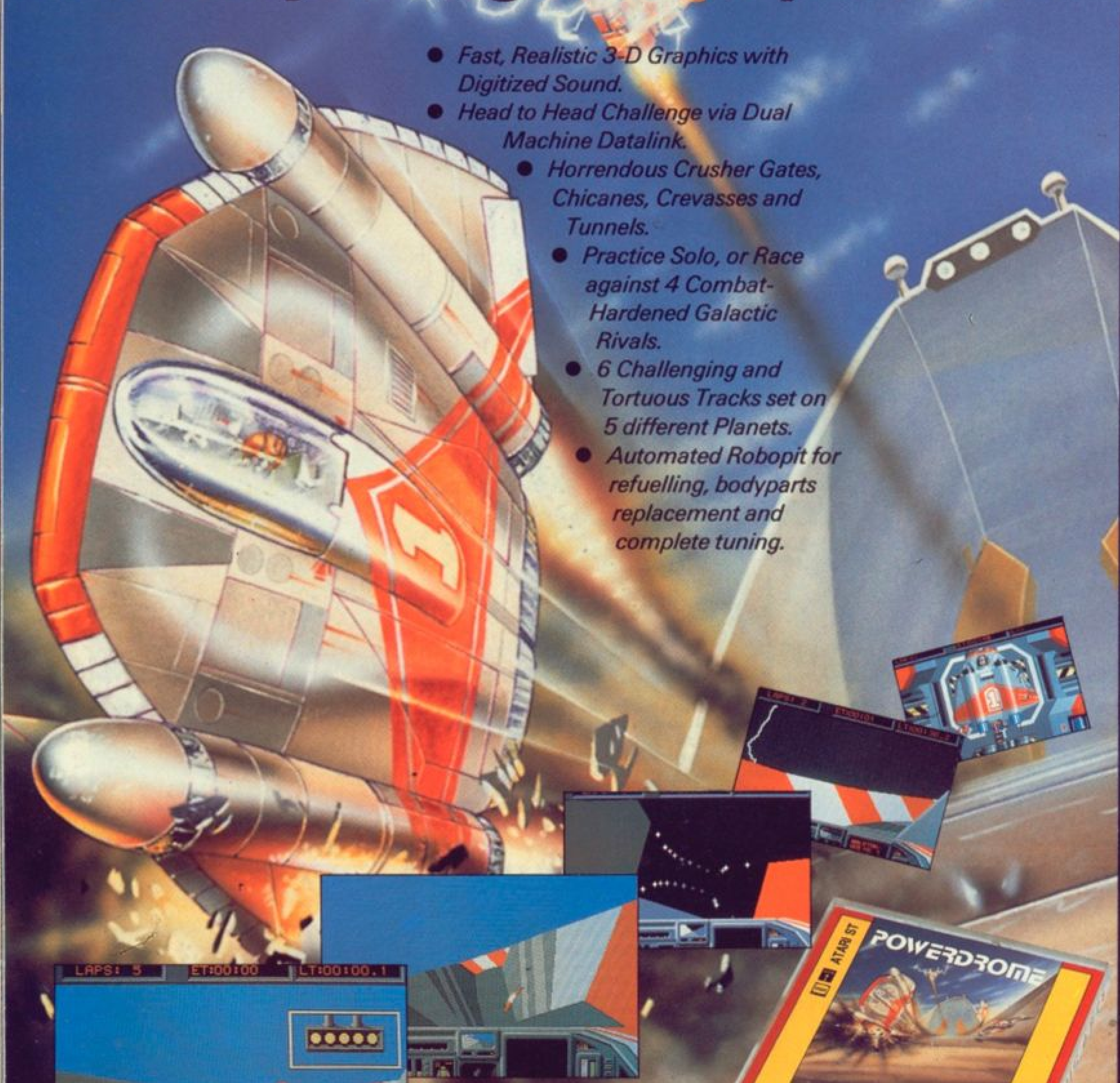
As you explore the ruins there are several crucial things to watch out for. Holes in the floor are the worst – fall down those and you will lose the lead character and all their possessions because you can't get the body back. Mapping is essential, because not only do you need to find objects quickly, but there are traps which have to be avoided and they're always in the same place.

The control system is very friendly indeed, making close and ranged combat very simple. The menu system is well organised too. It's accessed by a single keypress and you go straight back into the action ready to fight. The game task isn't as long-lasting as *Dungeon Master* but it has much more instant appeal. The role-playing aspect can definitely be improved upon in future releases, but it's an auspicious start for official *AD & D* games.

● Bob Wade



Appealing and absorbing to begin with, falling off because it's not quite big or complex enough.



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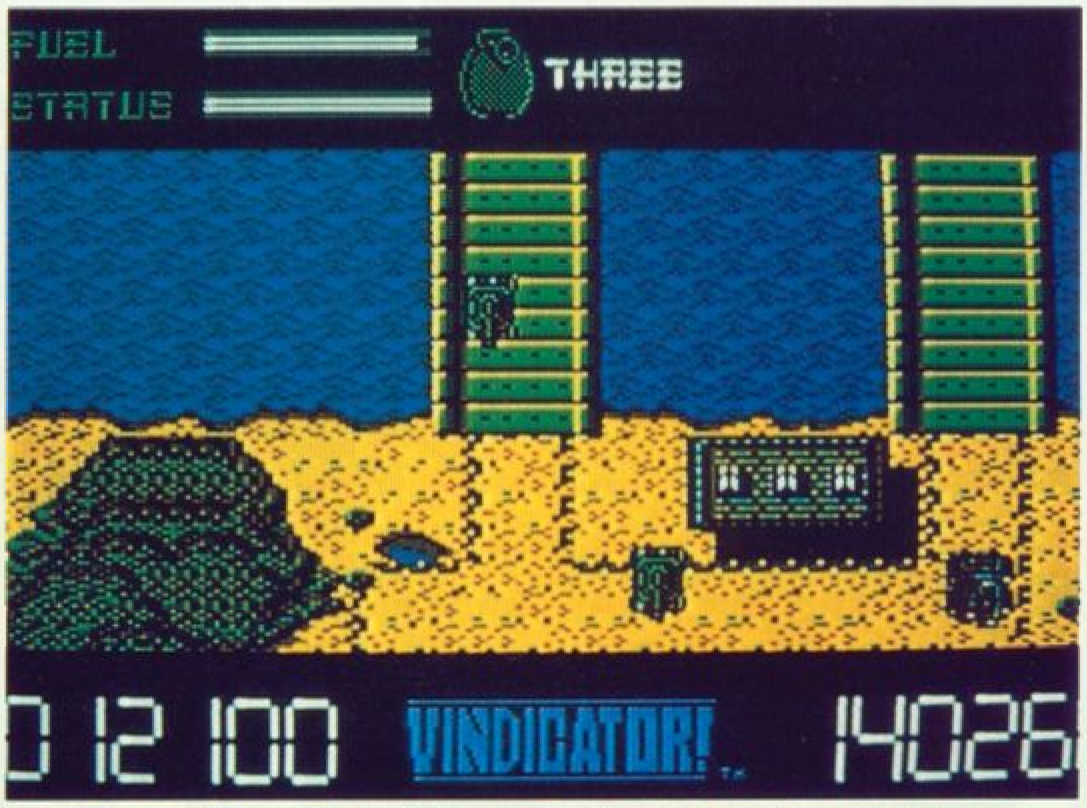


C64 - Trundling across the wastelands of Section 2 in your jeep, you'll have to watch out for those alien tanks!

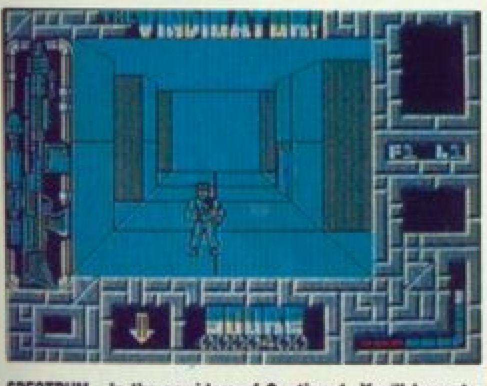
GUNG-HO fans will be surprised at the *'Green Beret II'* billing on this one, because any resemblance to the original is pretty hard to see. A multi-loader, the game comes in three very different sections all centred around repelling some nasty alien invaders. Anti-Soviet knifeplay is conspicuous by its absence, and coin-op immediacy is pretty hard to find too.

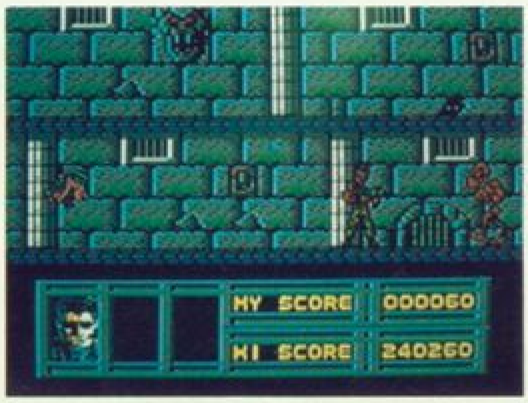
Section 1 is an arcade adventure set in a multi-level underground complex of corridors and store rooms. Your task here is to find the components of a bomb, by collecting computer access cards and solving puzzles.

The gameplay is familiar to the point of cliche - kill aliens, collect useful items and make maps - but a 3D corridor view provides a little interest. Unfortunately it also makes navigating extremely difficult and confusing, the view direction shifting to disorientate you every time you turn a corner. You'll have to make a map, but that's difficult too!

As arcade adventures go, it is rather dull stuff. How easy the aliens are to kill varies from one version to another, but the toughest of them are none too tough. The same is true of the computer puzzles, which turn out simply to be anagrams of high-score or title screen names. In fact your only real adversary is time: the atmosphere in the complex is toxic, so you'll have to manage your stocks of 'oxy-gum' carefully if you want to keep breathing. (Anyone remember *Marine Boy*?)

So far, so humdrum. Complete the bomb and you'll be given an access code for section 2 - which has nothing whatever to do with the game so far. According to the scenario, you're now battling your way through to the alien headquarters. This translates as a vertically scrolling shoot-em-up, and a rather dull one at that. It's got an unusual two-pass structure - fly over the landscape in a bomber to soften things up, and then battle your way through in a gun-toting jeep - but this fails to elevate it above budget standard.


SPECTRUM - In the corridors of Section 1. You'll have to map carefully if you don't want to lose your way.



C64 - Section 3's tunnels are packed with nasties like these - too packed, if anything.

C64 VERSION

On-screen coordinates make mapping easy in section 1, but the overall pacing here is way too slow: nothing comes and gets you! Bad collision detection in section 2 doesn't help, and the punitively difficult section 3 just about puts a tin hat on it.

GRAPHICS	6	**IQ FACTOR**	4
AUDIO	3	**FUN FACTOR**	1

ACE RATING 600

SPECTRUM VERSION

Graphically the weakestof all, this version does at least feature aliens in corridors in section 1 – but there's still no aggressive opposition, and no way to turn around in a corridor!

GRAPHICS	5	**IQ FACTOR**	4
AUDIO	2	**FUN FACTOR**	1

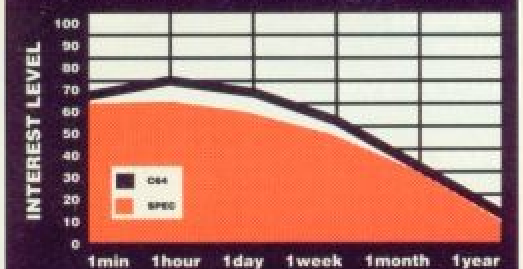
ACE RATING 535

The budget comparison is also strongly suggested by the third and final section, set deep in the catacombs of the alien HQ. A sideways-scrolling arrangement of corridors and lifts, the HQ is swarming with aliens of assorted heights. You can duck or jump to dodge their shots, but as ever the only real solution is to keep blasting. As with section two, the difficulty tuning here is turned up rather too high for comfort. It's an unrewarding slog, short on depth and long on unavoidable deaths.

An odd mish-mash of game styles, this one would have a job appealing strongly to any one type of games player. Section 1 is strictly for mapping buffs only - and a bit on the repetitive side even for them - while sections 2 and 3 are shallow, uninviting action fare.

● Andy Wilton

PREDICTED INTEREST CURVE



Multiple sections are no substitute for solid gameplay.

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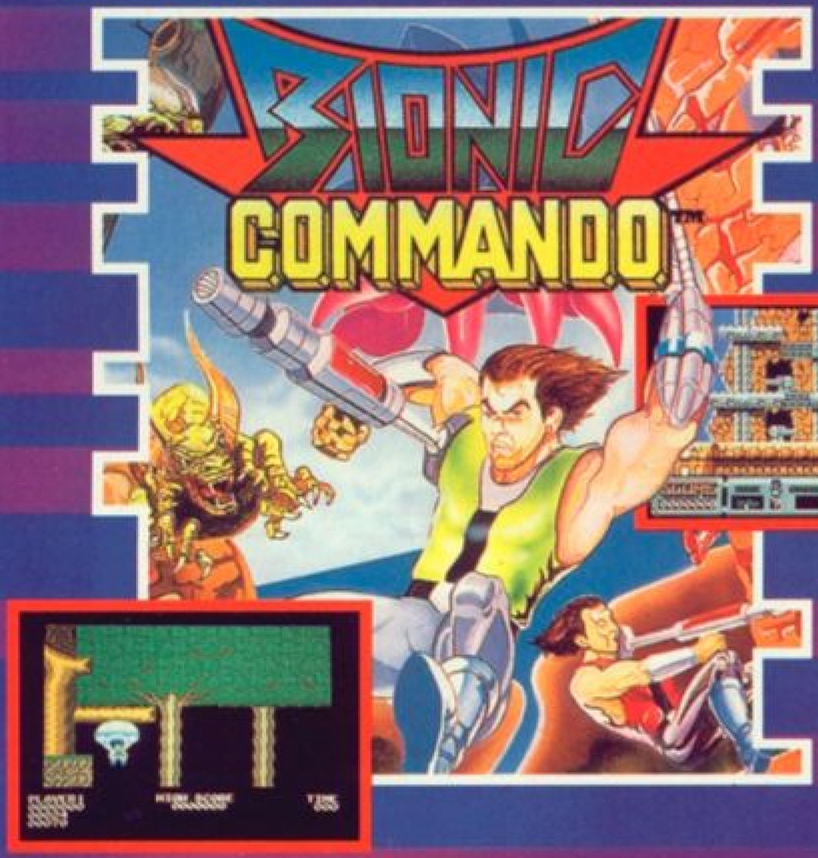

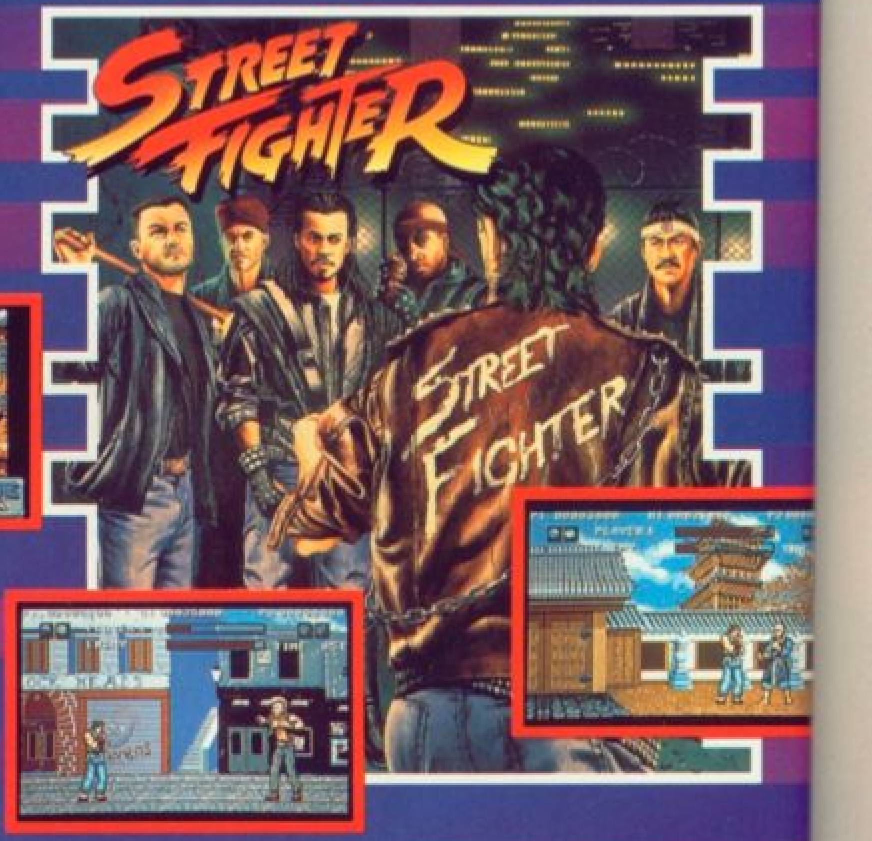

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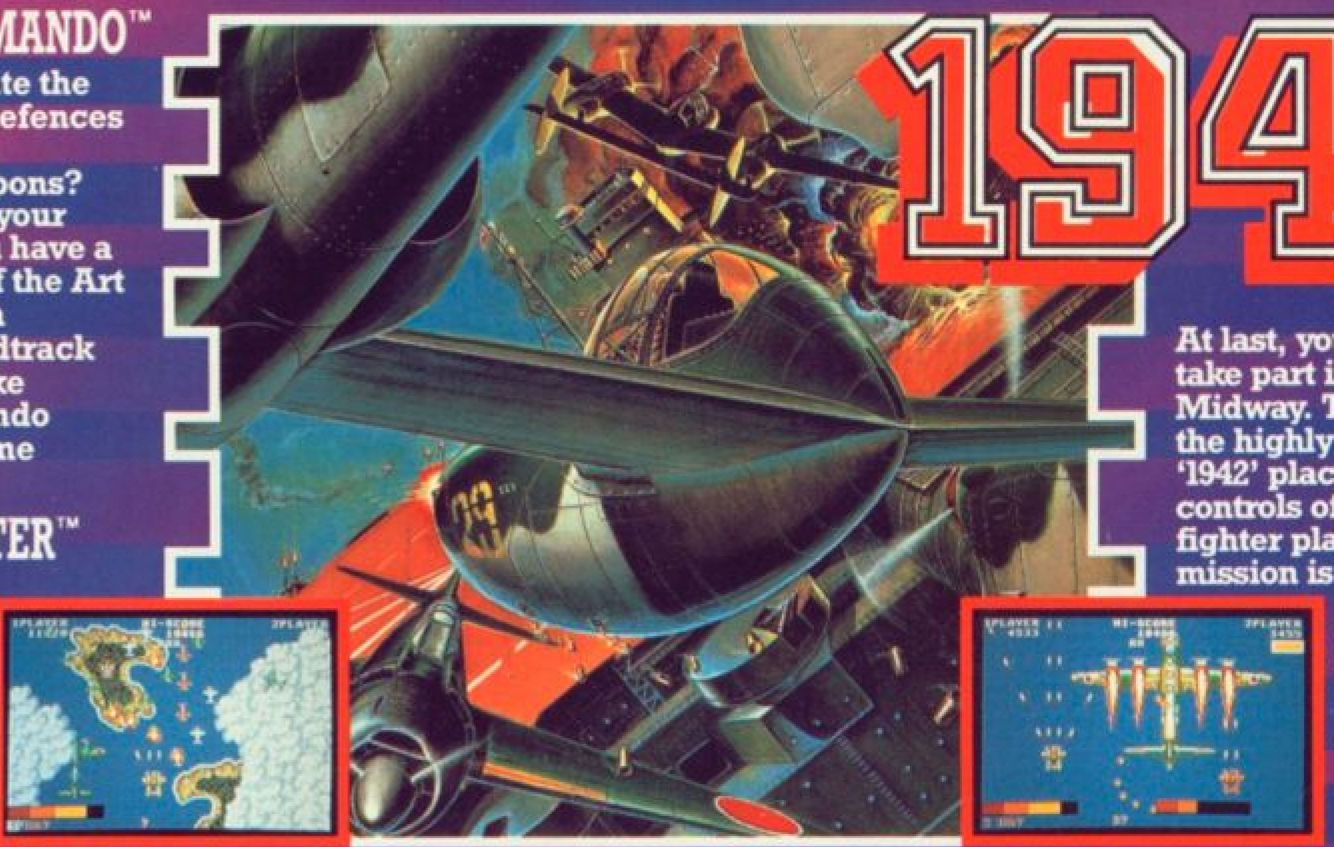

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GLOBAL DEFENSE

SEGA's Star Wars program

EARTH'S under attack from those pesky aliens again – will they never learn? – so it's time to launch the Global Defense Satellite and stop the waves of enemy missiles and satellites from raining down on our green and pleasant planet.

The game breaks down into two halves (offensive and defensive). During the offensive half you control the satellite, viewed side-on, and have to shoot as many of the missiles and satellites as you can as they scroll from right to left. The shooting method's like the old *Missile Command* system, i.e. you move a sight around and press fire and the shots take a fraction of a second to reach the target. This means you have to 'lead' the shots – simply fire at where you think the target will be, allowing for it's speed and direction of travel.

The second stage of the game has you trying to shoot down several waves of missiles as they descend from the top of the screen. Do this without letting too many missiles through and you can progress to the next stage, which is just more of the same.

Controlling the satellite can be tricky – you have to use the two fire buttons. Pressing and holding the first fire button gives you direct control of the satellite, so you can move it around and avoid anything that's on a collision course with you. The second button allows you to move the firing sight around.

Global Defense is good fun to play but it's standard arcade fare and suffers in the lasting interest department. You'll enjoy having a good blast every now and then, but it won't grip you or keep you enthralled for long spells at a time.

● Andy Smith

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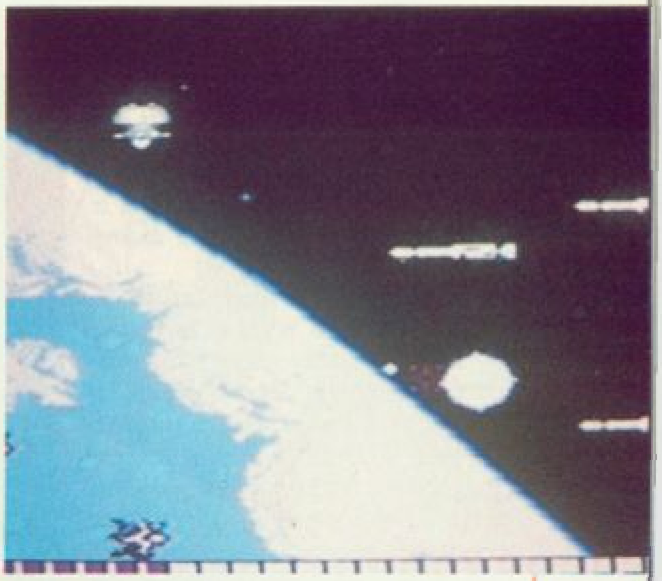
SEGA VERSION

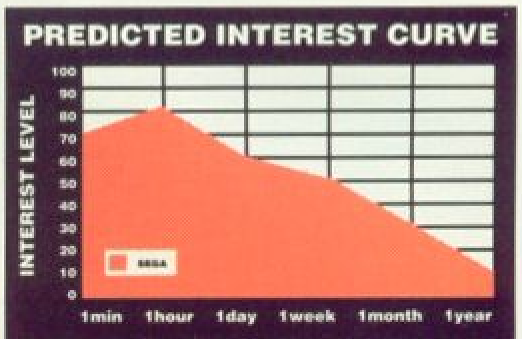
The graphics are, as expected, good. Sound, though, is awful. The game plays well, but there's little in it to keep you playing for long periods.

GRAPHICS	**8**	**IQ FACTOR**	**1**
AUDIO	**2**	**FUN FACTOR**	**8**

ACE RATING 618



During the offensive half. Destroy those missiles before they get a chance to do any damage.



Good blasting fun, but it won't keep you playing for long periods.

1943

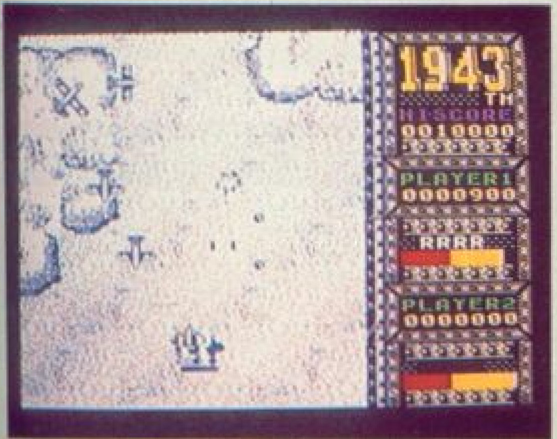
GO! fly a kite

P38s did sterling service for the American forces during WWII, and now's your chance to pilot one and take on the might of the Japanese navy and airforce in the battle for Midway.

Not surprisingly, this game's the sequel to that other highly successful coin-op *1942*. As such it's – not surprisingly – very similar to the earlier game. You've got to pilot your plane through four increasingly difficult stages of vertically scrolling shoot-em-up action. The enemy spend most of the time attacking you in aeroplanes, but the occasional battleship makes an appearance and will use it's gun turrets to try and blast you out of the sky.

Again, not surprisingly, the game offers you some extra weapons – six – to pick up. Simply destroy certain waves of aeroplanes and the last one leaves a 'POW' symbol behind. Fly over the symbol and your 'hit meter' is replenished a little (taking hits from the enemy during the game don't kill you outright, it simply reduces a meter at the side of the screen. When the meter runs out, it's game over). You can shoot the symbol to cycle through the extra weapons and pick up which ever one takes your fancy. The extra weapons include three-way shots and extra-large bullets, both of which make your life a little easier. After a few goes though, you'll soon discover that staying alive's not too difficult if you keep your meter topped up. In two-player mode you'll probably see everything the game has to offer during the first sitting. This means you'll soon get bored of playing the thing and will be looking for a new challenge.

● Andy Smith



Shoot every plane in this wave and you'll be able to grab a POW symbol.

SPECTRUM VERSION

The graphics are good, but it's a job to see the bullets most of the time. The game's fun to play but the lack of challenge means you'll soon be looking for something tougher.

GRAPHICS	**7**	**IQ FACTOR**	**1**
AUDIO	**4**	**FUN FACTOR**	**6**

ACE RATING 428

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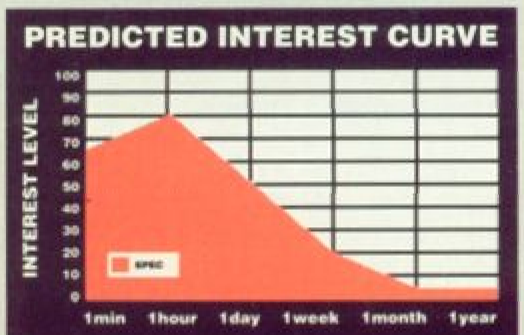
AMIGA	Price undecided	IMMINENT

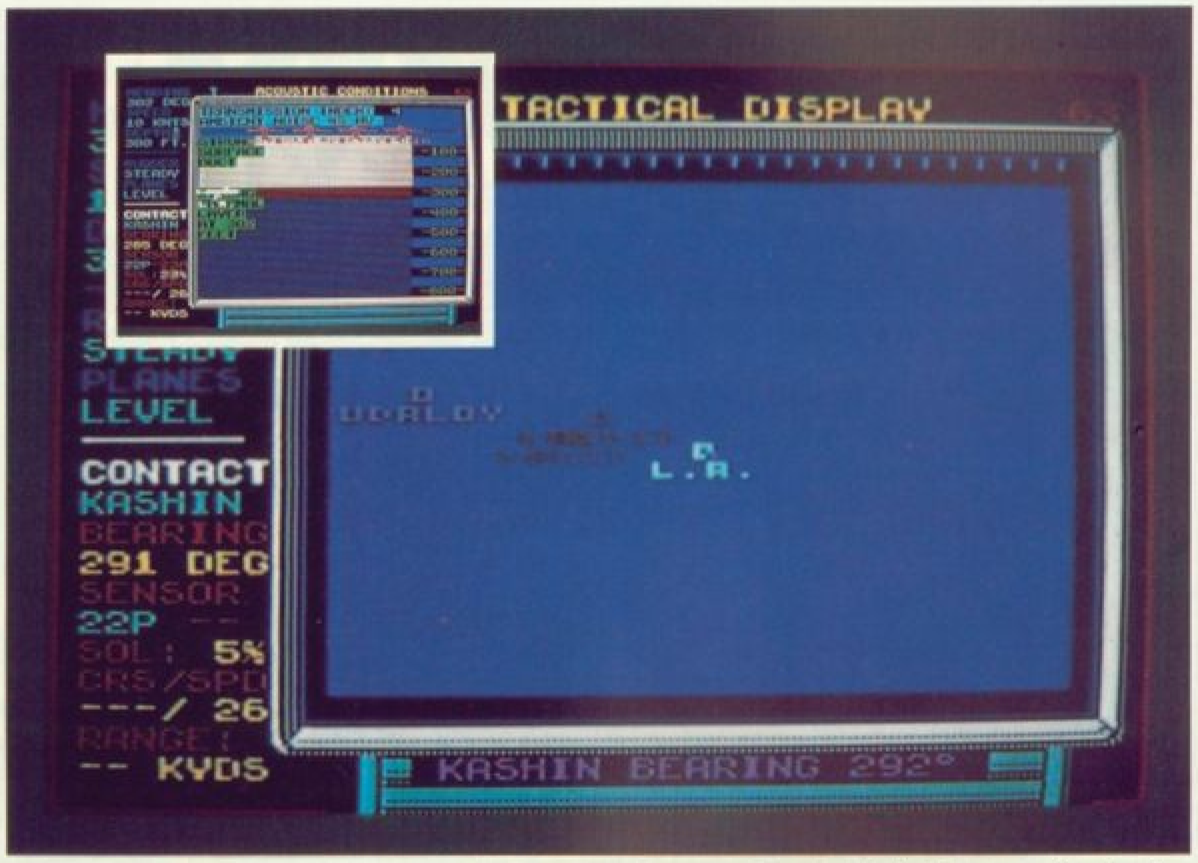


Fun while it lasts, but it doesn't last long.

THE Russians are coming! Or so Microprose and Tom Clancy would have us believe. This submarine warfare simulation is set in the future during World War III, and is based on the Clancy novel *Red Storm Rising*. You play the part of a submarine captain operating in the Norwegian Sea.

Submarine technology has come a long way since WWII (which was the setting for Microprose's last submarine simulation *Silent Service*). In those days, the sub's weren't nuclear powered, didn't have such advanced weapons and certainly didn't have sophisticated on-board computers. Nowadays modern submarines have all these things, but of course the methods for detecting subs have also improved.

Red Storm Rising features several scenarios, including training missions and the full blown campaign. It also has several difficulty levels and natural hazards such as ice packs to contend with. A submarine is only effective when it can strike unseen and so the emphasis in the game is to make silent strikes against enemy targets and then escape before they can locate and sink you. The weapons you have to launch at the enemy include wire-guided torpedoes and Harpoon missiles.



(MAIN PICTURE) You're in a 1992 scenario, and have just made contact with a convoy of Russian ships, including a tasty Aircraft carrier.
(INSET) This display shows the water temperatures, which effect the efficiency of your sonar.

RED STORM RISING

MICROPROSE run deep

Your sophisticated on-board computer not only offers advice should you need it, but it also keeps you informed of things like thermal layers (which play an important part in the efficiency of sonar etc). Unlike most submarine simulations where you have periscope and coning tower views of the sea stretching out before you for miles, *Red Storm Rising* concentrates on a VDU display of everything that's happening around you – modern subs don't NEED to surface any more, they can follow their quarry at comparable speeds while remaining in relative safety in deep water. The skill levels in the game allow you to cut your teeth on scenarios in which the enemy may fire at you, but their torpedoes etc don't have warheads, to scenarios where a single hit is likely to sink you.

Once you've played a few missions (which start with you having just made sonar contact with the enemy) – and you know not only how to handle your ship, but also how to remain undetected and avoid torpedo attacks should you become detected – you'll want to play the full campaign. Here you'll receive various missions, must discern the enemy's intentions and decide which are your objectives and try to manoeuvre into an attacking position.

Red Storm Rising not only gives the player a great scenario, but a great insight into just how complicated and tactical modern submarine warfare can be. It's not an easy game to get into, because there's so much to digest. The manual does a good job in easing you into the game and it's not long before you're holding you breath while you wait to see if the decoy you dropped will fool that torpedo that's locked onto your tail! If you've played and enjoyed *Silent Service*, you find *Red Storm* different enough to take a hard look at and if you've never played a submarine simulation, you'll be hard pushed to find one as enjoyable as this.

● Andy Smith

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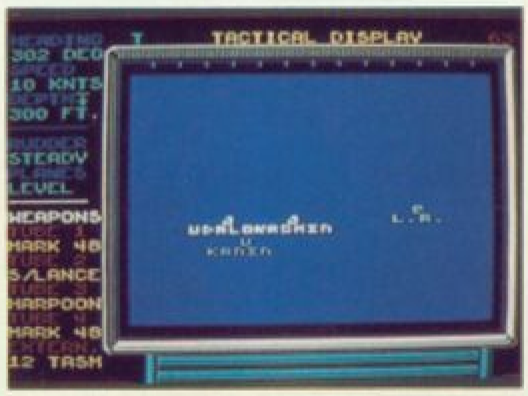
Other versions to be announced		



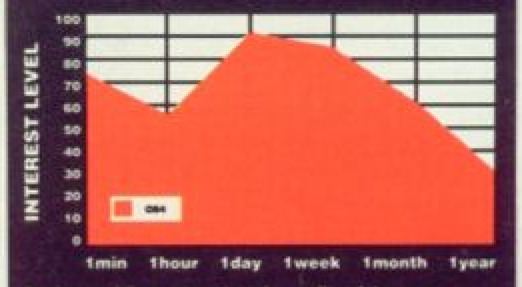
Tubes loaded and ready to fire.

C64 VERSION

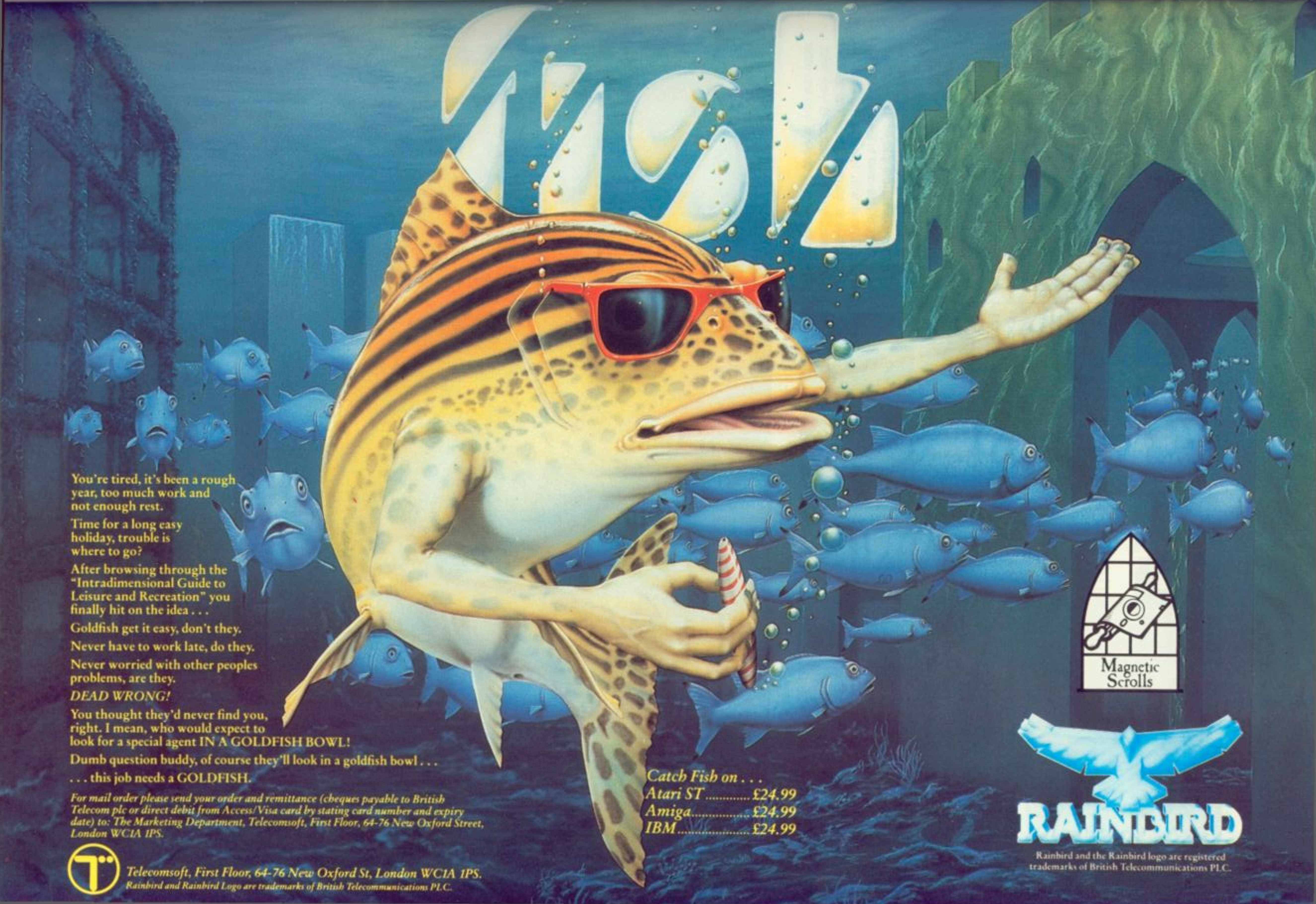
The graphics and sound are good throughout the game. The various scenarios and difficulty levels mean you'll be playing this for a long time to come (and enjoying every nerve wracking minute).

GRAPHICS 8 **IQ FACTOR** 6
AUDIO 6 **FUN FACTOR** 8
ACE RATING 814

PREDICTED INTEREST CURVE



It takes a while to appreciate the quality of the game.



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SPEEDBALL

A whole new ballgame from IMAGEWORKS

STEEL balls thrown straight at you are bound to hurt. It's a good job you've got plenty of body armour to protect yourself then.

Arcade shoot-em-up fans (and anyone who caught ITV's *Get Fresh* on a Saturday morning) will doubtlessly remember *Xenon* from Melbourne House. That lill' gem was written by those enigmatic Bitmap Brothers, and this is their latest game. *Speedball*'s set in the future and looks not unlike five-a-side football – but is in fact a full body contact sport played between two five-man teams inside a rectangular steel clad arena, with a goal mouth at each end.

The idea of the game's simple enough – throw the steel ball into the opponents' goal as often as you can before the time runs out. Before you start the game – you can play against the computer or a friend in either a knockout tournament or in a league – you can choose which team you'd like to be from a group of three. These who all have varying amounts of speed, stamina and power characteristics.

RELEASE BOX

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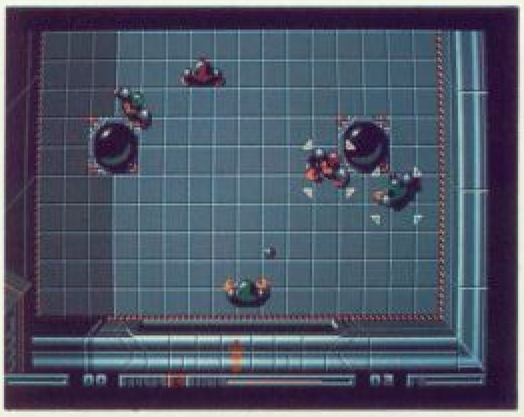


The red team have just lobbed the ball down field towards the green goal mouth.

Make your selection and you're into the game. A launcher appears in the center of the playing field and fires the ball in a random direction. The launcher disappears and you then control the player that's either in possession, or is nearest to the ball – the player highlighted with four arrows. Once you have the ball, you can either run with it or throw it to another member of your team. Should you elect to throw it, you can either

ELITE

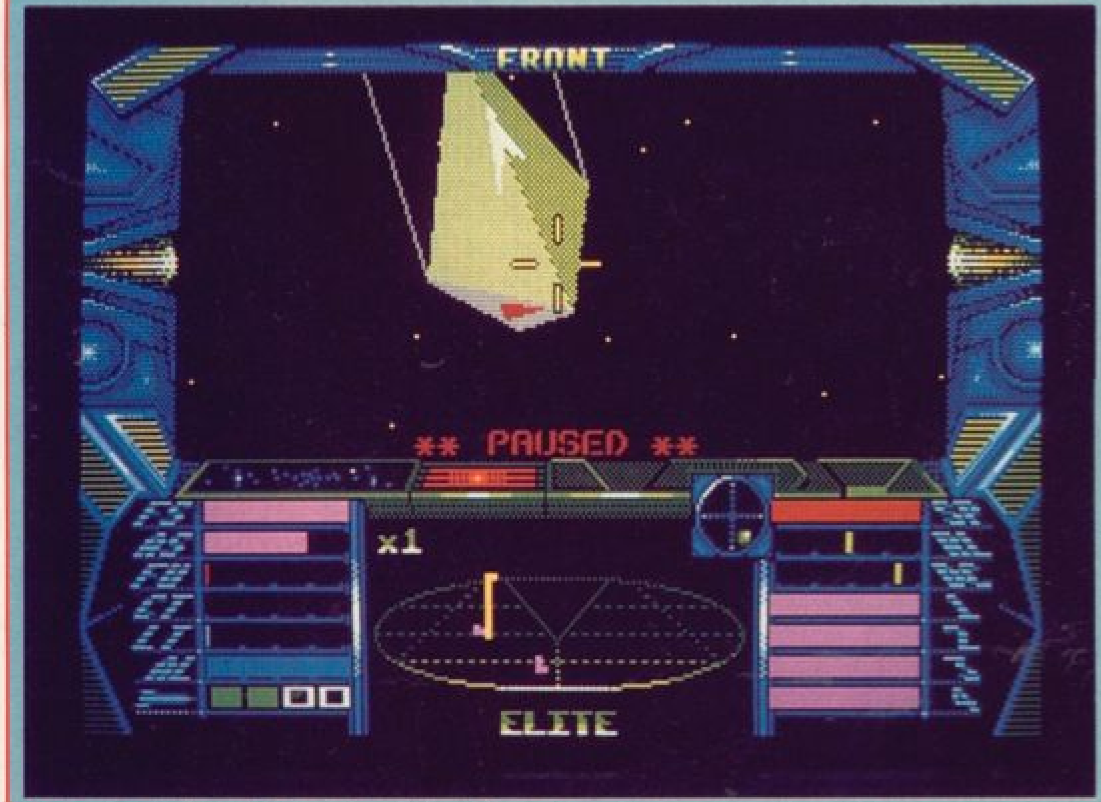
UPDATE SPECIAL

ATARI ST ● Firebird £24.95dk

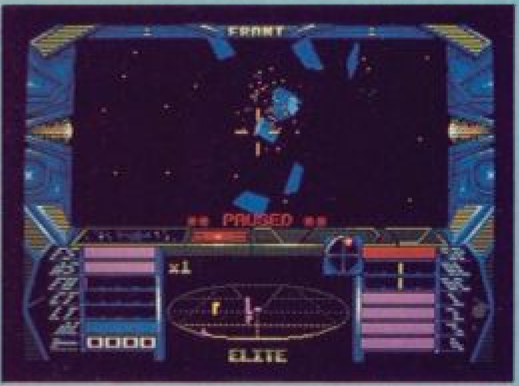
FOUR years have elapsed since the first Cobra Mk III blasted out of a space station on the BBC Micro. Since then the spaceways have been packed with pirates, traders and bounty hunters amassing fortunes and climbing the rankings, as they turn gleaming snake ships into space debris.

The test of time is particularly severe on computer games – four year old titles don't feature in many people's top tens. Playing *Elite* again after a long time away from it is a very odd experience. Initially you feel let down through the first few games because there's little new about it. However, after a while the old addiction starts coming back. Before you know it, you're totally absorbed in pitched battle and spend half the night trading your way through the universe. Old *Elite* players will certainly love it, but anyone new to it is probably wondering what all the fuss is about.

It's a mix between zapping and trading, set in a universe of 2000 planets. Your task is very simple – survive and make money. In order to survive you're going to have to fight off some of the meanest space pilots this side



A Krait flashes across your front viewscreen, a perfect target for one of the two missiles indicated in the bottom left of the display panel.



That's one Sidewinder that won't be any more trouble. In the middle of the explosion you can see two cargo pods which can be collected if you've got a fuel scoop.

ATARI ST VERSION

The graphics are up to the mark, the ships looking glorious as you dogfight with them. Having said that, it doesn't really have much on screen so it's not as impressive as many ST games. The sound is very disappointing – a terrible rendition of the Blue Danube and what few effects there are are pretty painful.

GRAPHICS 8 **IQ FACTOR** 6
AUDIO 2 **FUN FACTOR** 8
ACE RATING 907

lob the ball (keep your finger on the fire button for approximately one second) or make a straight throw (a quick jab on the fire button).

Getting the ball in the first place can be tricky, though, as you have to perform either a sliding tackle on an opponent, or just punch him. What move your current player makes is dependent on what situation he's in. A running player will perform a sliding tackle on another player, whereas a stationary player will punch. A running player that has the ball flying directly overhead will not do either of these, but will leap upwards and grab it.

As well as having the opposing team to contend with, large dome structures are present on the field. They are situated in different places for each match, so it's no good learning your way round individual layouts. Running over these domes is no problem, but if you throw a ball over one it will be deflected. This can cause problems if you're not careful!

Tokens appear in the game from time to time. The tokens are of two varieties. Letter tokens, once collected, give you immediate benefits such as increasing your stamina, making you invulnerable to tackles for a few seconds, giving you a mine to drop and freezing your opponents to the spot for a few seconds. Spinning tokens, once collected, can be traded in at the end of the game for extra speed, stamina or power.

Speedball looks and plays great, and the action's fast and furious. It takes a while to get used to moving the ball around and tackling other players effectively, but master that and you're in for some long playing sessions.

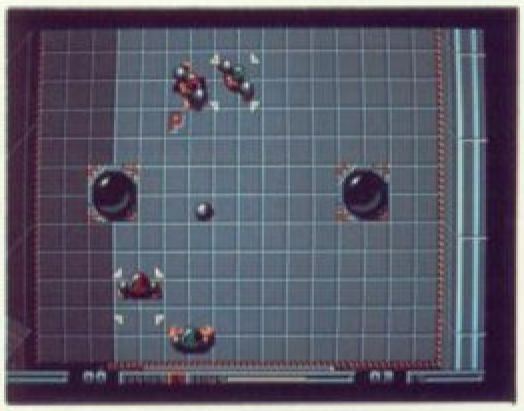
● Andy Smith

ATARI ST VERSION

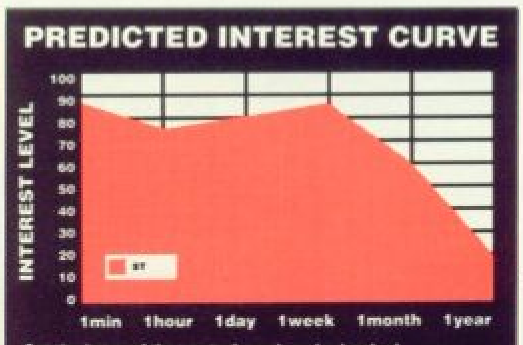
The Bitmaps have lost none of their flare for graphics, and sound's good too. The gameplay's great and the action's manic throughout each of the short games. The underlying *Rollerball* theme of sport and violence has not been overdone and it adds a bit of a bite to the game, making it great fun to play.

GRAPHICS	**8**	**IQ FACTOR**	**2**
AUDIO	**7**	**FUN FACTOR**	**8**

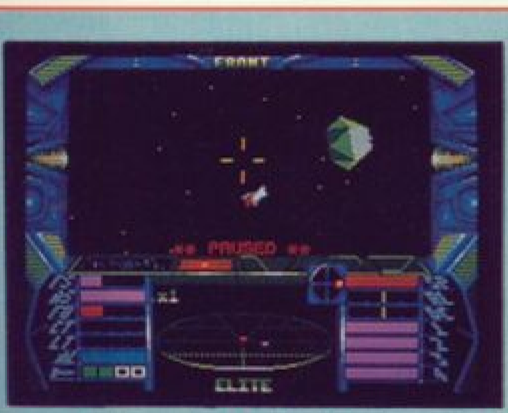
ACE RATING 834



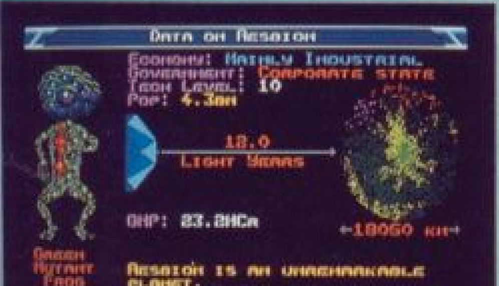
Red still have it and look to be in a scoring position.



Get the hang of the controls and you're hooked.



The green Asp isn't equipped with ECM, so that missile of yours that's chasing it is going to turn it into so much space debris.



Data on Aesaion

Economy: Mainly Industrial
Government: Corporate State
Tech Level: 10
Pop: 4.3bn

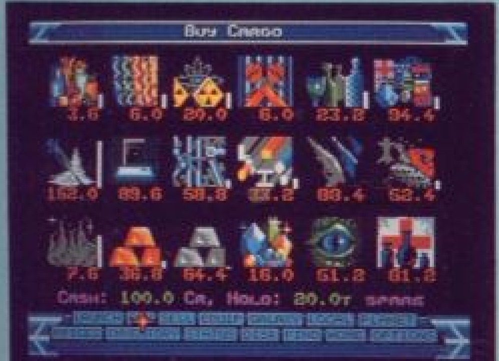
18.0
Light Years

GNP: 23.8MCr
18060 km

Green
Mutant
Frog

Aesaion is an unremarkable planet.

This description of the planet Aeshon shows it's a good place to trade food or drink as it's mainly industrial. It's a also a good spot to buy weaponry with its high tech level.



Buy Cargo

Cash: 100.0 Cr, Hold: 20.0t spare

This is the new-look commodities buying screen. The bar next to the narcotics (centre row, left-hand end) shows there's plenty of them, but will you carry an illegal cargo?

of the Horse Head Nebula. To make money you'll have to be a canny trader and even dabble in some dodgy goods.

You fly a Cobra Mk III – all the ships are named after snakes – which is initially ill-equipped with just a weak laser and three missiles. You've also only got 100 credits to your name. From these humble beginnings you've got to make piles of cash in order to buy better equipment for the ship. You can trade in any of 18 items, buying low and selling high. The prices fluctuate between planets, depending on what type of economy they have. Rich industrial planets will pay well for food, while you can reap a crop of zlotys by selling computers to poor agricultural ones.

Other types of goods are required at industrial or anarchy planets and not all of them are legal. Traffic in guns, slaves or narcotics and your legal status will attract the attention of police Viper ships.

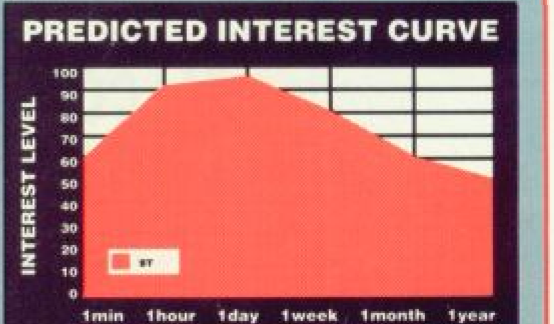
In order to trade successfully you've got to be able to get from one planet-orbiting space station to another. After fuelling up and leaving the space station you can quickly select a planet that's in range from the local map – calling up details on the planet and its inhabitants if needed. Then you hyperspace to it. Once there you head for the planet until the space station appears on the scanner and you can dock with it.

Docking isn't easy, but surviving that far is even tougher. Depending on the sort of planet you've jumped to you may encounter peaceful traders, bounty hunters, pirates or even the dreaded Thargoids. Initially most of them will have superior weapon systems to yours, so the only way to stay alive is to outfly or out-run them. It's impossible to avoid combat entirely, and besides, it's your only way of improving your initial 'harmless' rating. The more kills you get, the higher you get rated.

The equipment you can buy includes more powerful lasers, a larger cargo bay, fuel scoops for collecting cargo in space, an energy (smart) bomb, docking computer, escape capsule and other helpful devices. Meaty killing devices like military lasers are going to set you back 6000 credits and a galactic hyperdrive for hopping between galaxies, 5000 credits.

The range of ships is excellent and everybody has a favourite they like to blast to kingdom come. The conversion doesn't add anything much to what has gone before, with just a few additions and alterations here and there. The basic format is still the same – and as wonderful as ever. It's got much more competition these days and no longer looks leading edge in terms of gameplay or programming, but it still has the essential addictive ingredients of a great game.

● Bob Wade



The competition have certainly caught up, but it's still a cracking good game.

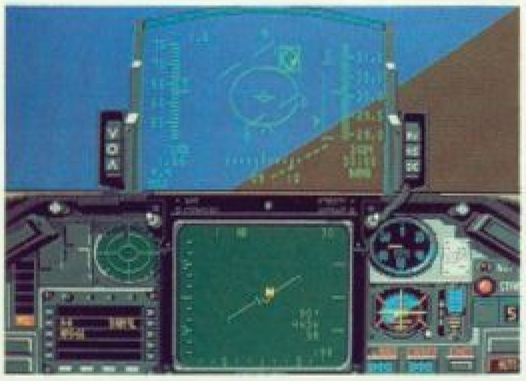
FALCON AT

UPDATE SPECIAL

IBM PC ● Mirrorsoft/Spectrum Holobyte £34.99 - on 3.5" and 5.25" disks

FOR a long time now this has been the fave flight sim of gritty realism fans, a game that achieves at the hard-knocks end of things what *F/A-18 Interceptor* does for the faint of heart: puts you in the pilot seat.

The game's based on the *F-16 Falcon*, an American fighter-bomber very much in the simulations limelight at the moment. By choosing different ranks you can vary the accuracy of the simulation from invulnerable and armed to the teeth (First Lieutenant) to highly realistic, six-missile SAM fodder (Colonel) with enough room in the middle for a comfortable compromise.

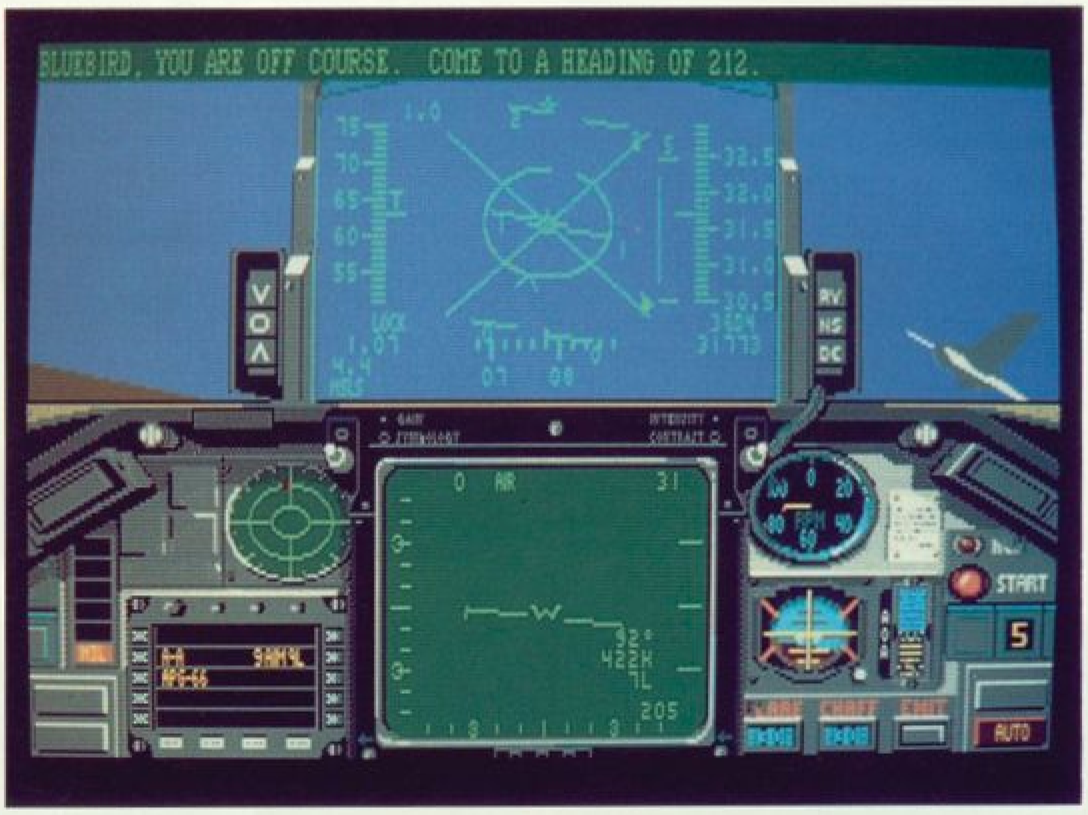


The wealth of missions available include dogfights, strategic bombing and anti-armour, but none of them are easy once you start bumping your rank up. Attention to detail is high, and weapons systems are based too closely on the real thing for sloppy piloting to get you through.

There's a hefty accompanying manual and reading this is a must, but bookwork alone won't win the war. Repeated practice is the only thing that'll build your skills up, and you'll still need to concentrate like crazy once you've learnt the ropes. The game's real depth lies not in size but in sheer difficulty – as a Colonel you'll feel like the whole world is set against you – combined with a sense of realism that grips like a vice.

If you really want the terror, exhilaration and sheer everything-happens-at-once confusion of combat flying, this game delivers. The graphics help too, of course!

● Andy Wilton



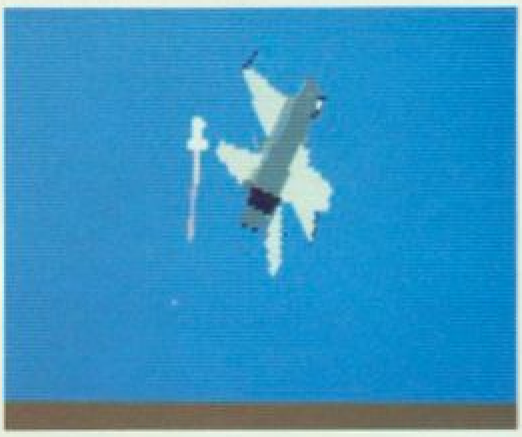
BLUEBIRD, YOU ARE OFF COURSE. COME TO A HEADING OF 212.

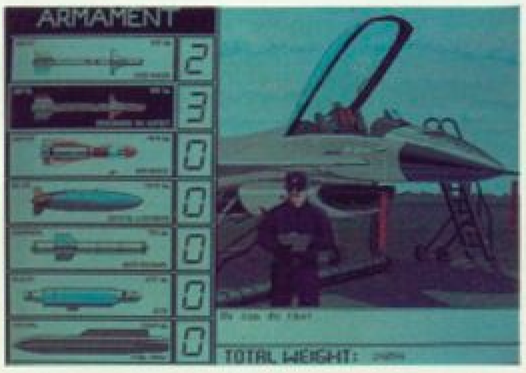
LEFT There's a MiG 21 ahead of you: the diamond cursor around it means it's within missile range.

ABOVE You've overshot, the big 'X' across the HUD indicating that you're too close for a shot.

RIGHT Using an outside view, you watch as your Sidewinder air-to-air missile streaks off towards an enemy MiG.

BELOW Looking for weapons? Need a fuel tank or an ECM pod? Then ask 'Sarge', your crew chief – but be sure to ask nicely!





EGA PC VERSION

A sharp, colourful display gives this one a big edge over its CGA cousin, but the screen still updates at a healthy rate. Serious fliers will feel the need for a joystick if only to overcome key-repeat annoyances. Never mind, it's worth the extra!

GRAPHICS	9	IQ FACTOR	9
AUDIO	3	FUN FACTOR	7

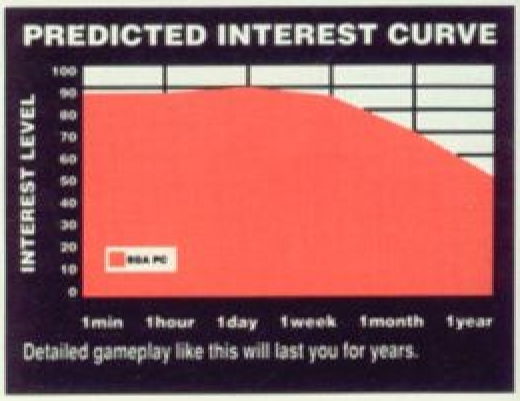
ACE RATING 945

FALCON'S PROGRESS

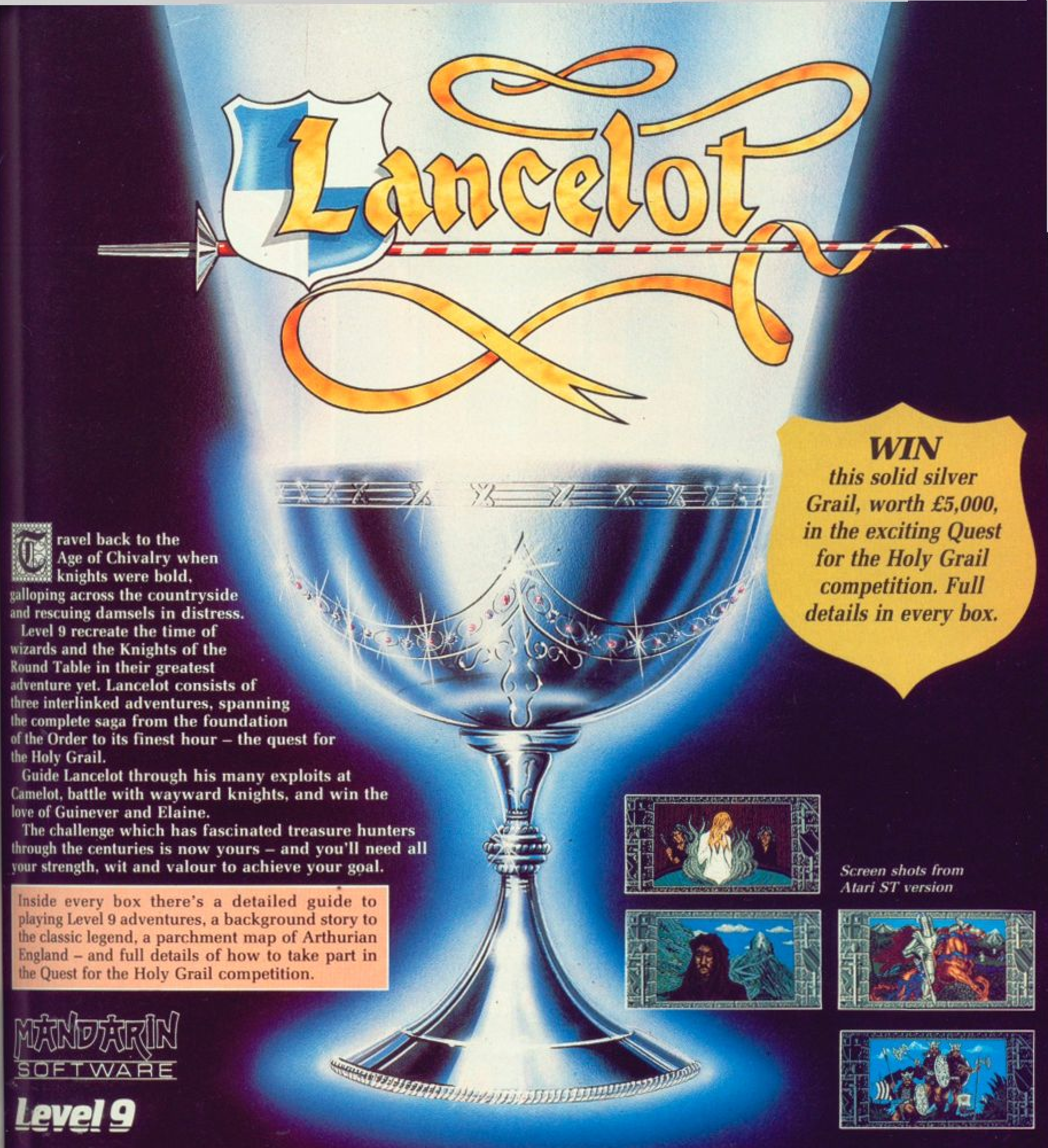
Though it first saw light as a 16K MSX cartridge, *Falcon* is known in this country for its Macintosh and PC versions. As a result, its gameplay has so far been complemented only by mono or low-res magenta 'n' cyan graphics. *Falcon AT* marks a departure then with its bright, sharp, colourful displays – and there's an ST version in the wings to back up this new graphics-intensive approach.

To run *Falcon AT* you'll need a PC with EGA capability, a decent monitor and preferably a hard disk or large-capacity floppy drive. For most people in the UK this means an Amstrad 1640 with ECD monitor and hard disk, a set- up that provides a very playable game. Of course, if you've got a high-speed 80286 or 80386 PC you can enjoy a rather faster game, but that's hardly necessary: indeed, there's a built-in slowdown option just in case the game runs too fast for your liking!

PREDICTED INTEREST CURVE



Detailed gameplay like this will last you for years.



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Screen shots from Atari ST version

MANDARIN SOFTWARE

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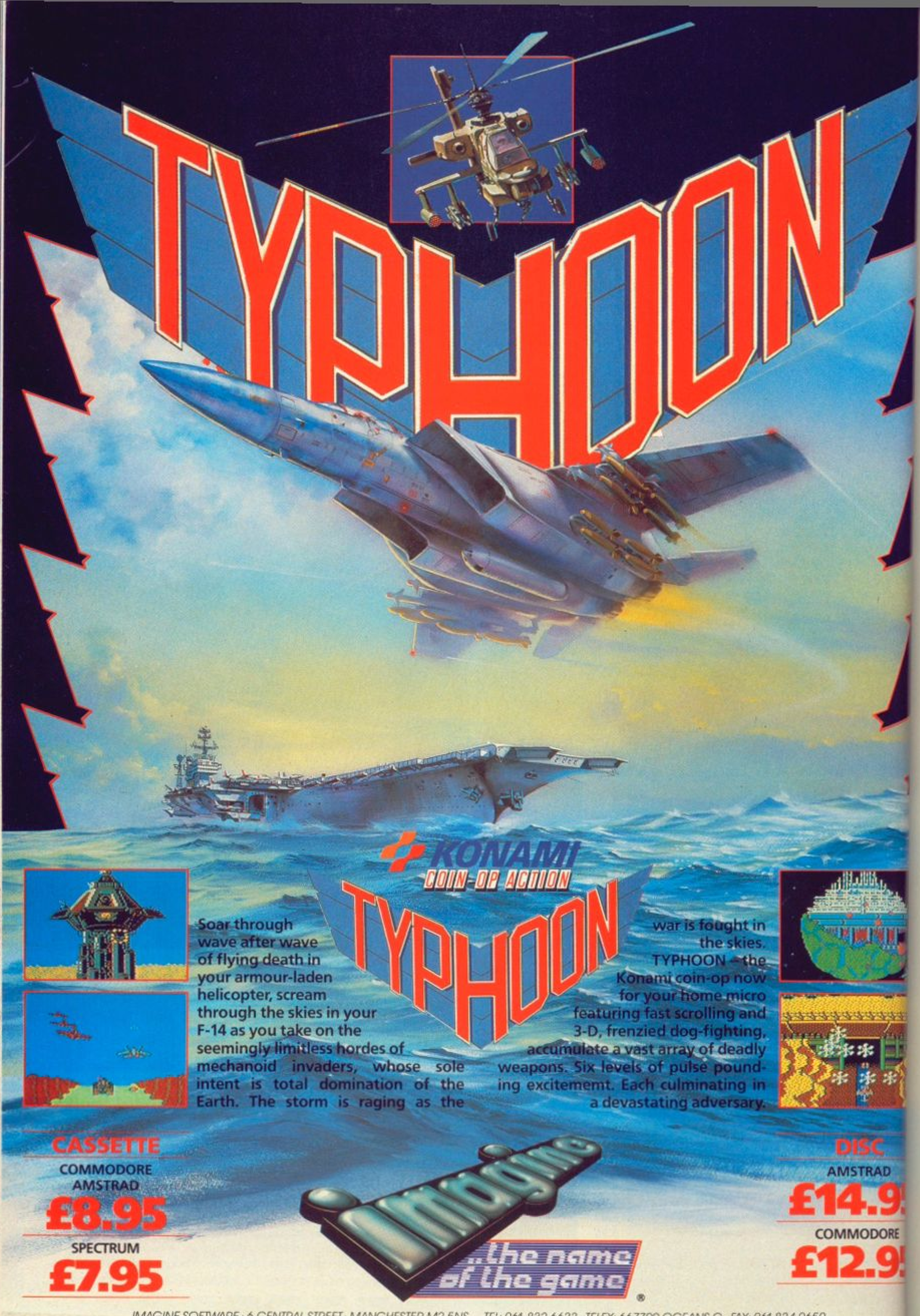

Soar through wave after wave of flying death in your armour-laden helicopter, scream through the skies in your F-14 as you take on the seemingly limitless hordes of mechanoid invaders, whose sole intent is total domination of the Earth. The storm is raging as the war is fought in the skies. TYPHOON – the Konami coin-op now for your home micro featuring fast scrolling and 3-D, frenzied dog-fighting, accumulate a vast array of deadly weapons. Six levels of pulse pounding excitememt. Each culminating in a devastating adversary.

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OLYMPIC fever's still with us if the number of recent sporting releases is anything to go by. These two games have been available on the C64 for a long time, but only now have Spectrum and Amstrad owners had the chance to work up a sweat and join in the fun.

So, what have you got to compete in? In *Summer Games* you face eight events in all. In the Pole Vault you have to judge when to plant the pole, when to kick up and flip over the bar and then when to release the pole. Diving gives you the chance to show off your acrobatic prowess on the high diving board and the 4 x 400m relay requires good pacing and team work if you're to be successful. The 100m dash is a good ol' fashioned waggle-for-the-line event while the gymnastics event sees you vaulting over a horse. Skeet shooting (which seems to appear on every sporting compilation) has you shooting clay pigeons from several different stations. For the final two events you're in the swimming pool for the Freestyle relay and the 100m Freestyle dash.

RELEASE BOX		
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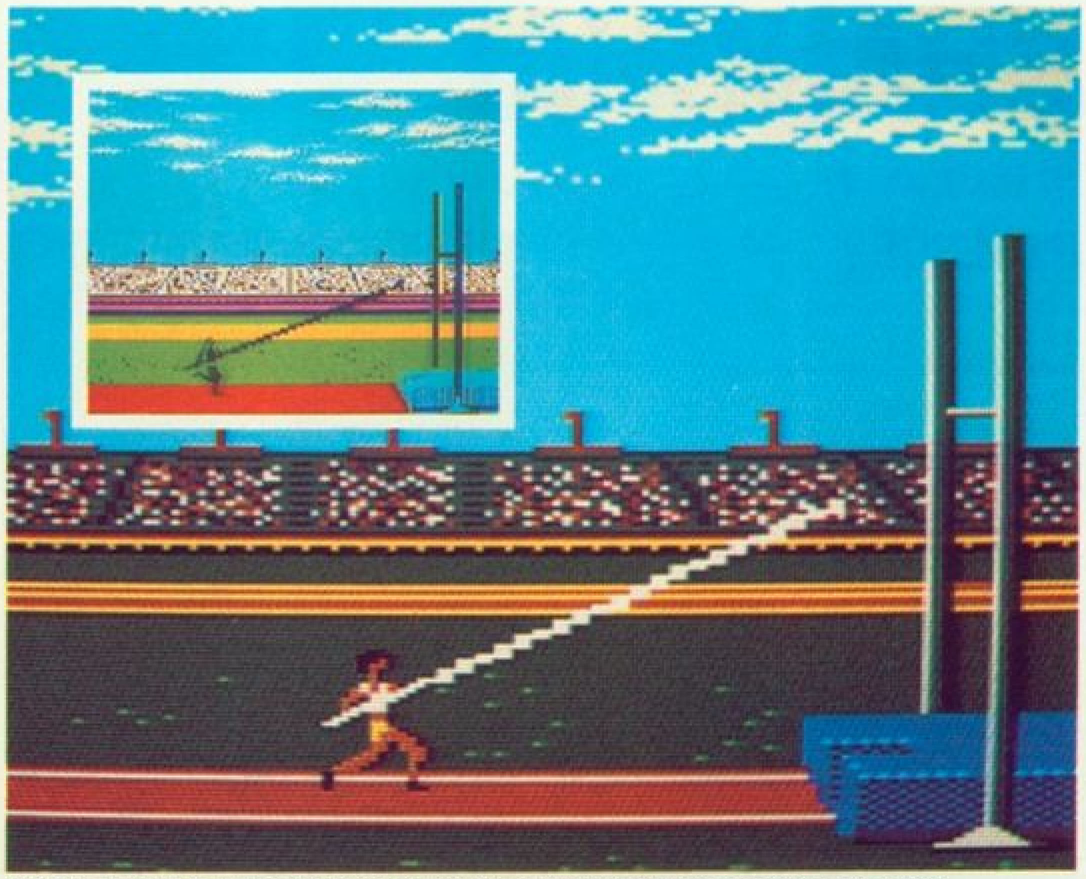
All prices for *Gold, Silver, Bronze* compilation		



AMSTRAD - Gry from Norway Pole Vaulting in *Summer Games I*. (Inset) SPECTRUM - note the inferior graphics.

SUMMER GAMES I + II

Medal-ing with Epyx

SPECTRUM VERSION

The animation for each event's good (but the colours are garish). It doesn't take long to master even the hardest events, but it's still good – if unoriginal – fun.

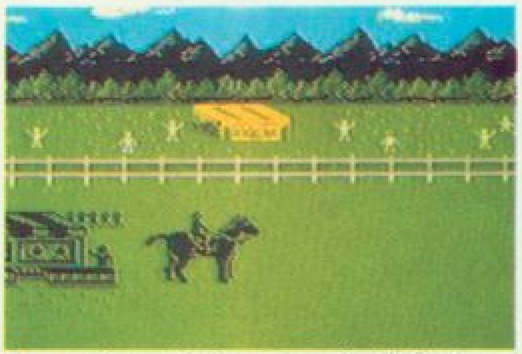
GRAPHICS	7	IQ FACTOR	1
AUDIO	6	FUN FACTOR	7
ACE RATING 683			

AMSTRAD VERSION

The game's much more colourful on the Amstrad, otherwise it's just as much fun as the other versions.

GRAPHICS	8	IQ FACTOR	1
AUDIO	6	FUN FACTOR	7
ACE RATING 689			

Summer Games II also gives you eight events. In the Triple Jump you hop, step and jump your way into a sandpit. Rowing is a single sculls rhythmic waggling event. Kayaking has you on the water again, but this time going through a series of gates along the course. The Javelin event requires power and precision to win and the High Jump event requires the player to carefully select speed and the angle of jump. Fencing's next, where you have to parry and lunge against a series of opponents, while Cycling has you rotating the joystick in a clockwise motion to simulate pedalling. The final event's Showjumping (against the clock, naturally).



The equestrian event in *Summer games II* on the Spectrum.

Each event in the game(s) can be selected individually, so you can practise the ones you're having difficulty with. Once you get good at the events you can take on some of your friends or the computer and start competing for those gold medals. Both *Summer Games I* and *II* offer little that's original, but it's all been done well.

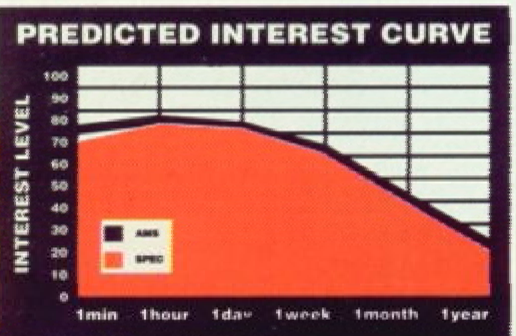
● Andy Smith

GOLD, SILVER, BRONZE

So, how you going to get hold of these games? Well, coming soon from Epyx is a sporting compilation that's almost guaranteed to blow the socks off any sport sim' fan. *Gold, Silver, Bronze* – as the compilation's called – includes both *Summer Games I* and *II* plus *Winter Games*. That makes some 23 events to compete in! Boy, some people are gonna have either sore wrists or busted joysticks (and probably both) in the near future!

SUMMER GAMES I • SUMMER GAMES II • WINTER GAMES
CBM 64/128 CASSETTE
GOLD
SILVER
BRONZE
CBM 64/128 CASSETTE
SPORTING IMMOR

PREDICTED INTEREST CURVE



Lots to do, but it's all similar stuff.

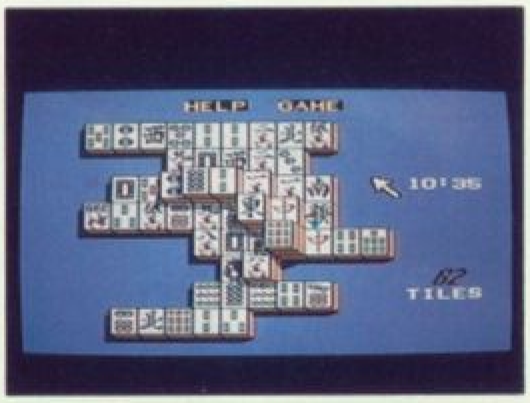
SHANGHAI

SEGA make a lovely pair

PATIENCE games have always been an odd subject for computerisation, simply because you can usually get much better value from a pack of cards and a book on the subject. What's so different about this one that made Activision release home micro versions of it a few years back, and produced this Sega Master System cartridge now?

For starters, a pack of cards wouldn't get you very far here. The game's played with a set of *Mah Jong* tiles, stacked in an elaborate pattern. Your aim is to remove end-of-row tiles from the layout in matching pairs, until you've cleared the whole thing away. There being 144 tiles to a *Mah Jong* set, this is a sizable proposition indeed.

Even if you're an avid *Mah Jong* fan and have a set of tiles at the ready, you'll still find the computer version has the edge. The large, tightly packed layout would take a long time to set up by hand, and be tough to work with in play. More to the point, the electronic version of the game lets you replay deals which end up blocked in play (and many do).



SEGA - Blocked! There are no pairs among the end-of-row tiles, so you'll have to start again.

RELEASE BOX		
SEGA	£19.95cr	OUT NOW

SEGA VERSION

Graphics and music are both well up to normal Sega standards, and the pointer control system works well. A great addition to anyone's cartridge collection!

GRAPHICS	**6**	**IQ FACTOR**	**5**
AUDIO	**3**	**FUN FACTOR**	**4**

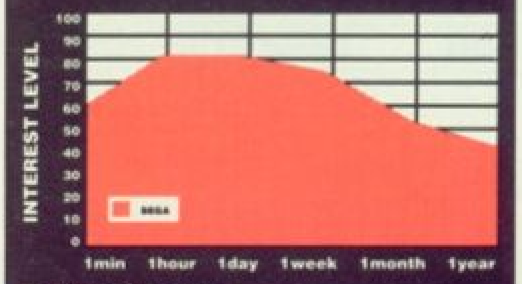
ACE RATING 796

Although rather mechanical at first sight, the gameplay does place definite demands on the brain. Each tile in a *Mah Jong* set matches three others, so you'll often be faced with a choice over which pair you form. As you get deeper into game strategy you'll often find that, though a pair is available immediately, you'll want to save the tiles involved for use in different pairings, so as to extract others still locked into the layout. Some set-ups will take four or five attempts to solve, and a few can't be solved at all – but that's patience for you.

By turns soothingly routine and fiendishly complex, *Shanghai* makes a satisfying change from all that blasting – but be warned, it's at least as addictive!

● Andy Wilton

PREDICTED INTEREST CURVE



Has that timeless quality.

ZOOM!

DISCOVERY re-paint an old master

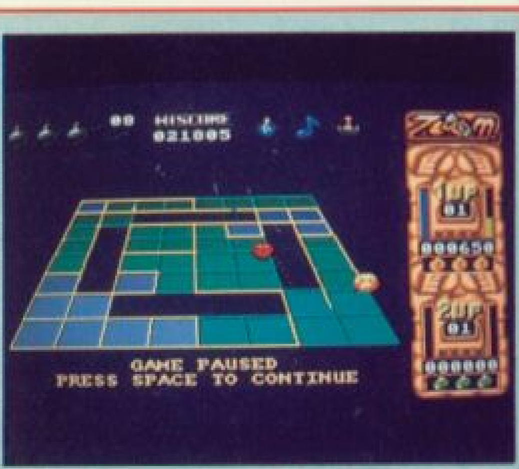
THOSE of you not old enough to remember the first arcade explosion, when things like *Frogger* and *Missile Command* were the *Afterburners* and *Out Runs* of their day, probably won't remember the game that inspired this little number.

Zoom! has some fifty levels to it. Each level is made up of a rectangle of tiles, and you control a character who has to rush around the level over the junctions of the tiles. As you move around, you leave a trail marking where you've been, and as soon as a tile is completely surrounded by your trail, it changes colour. Manage to colour all the tiles and the level's complete and you move onto the next.

The levels are always rectangular but sometimes tiles are missing, forming large holes. Fortunately you can't fall into these holes, but you can fall into the round black holes that sometimes appear during the game. Other nasty things to avoid are the 'deadly flapping lips' that chase you around. Contact with these and other moving nasties removes one of your initial three lives. Not all the nasties kill you outright, some just make you slow down for a while – that can cause obvious problems – and others just move around erasing your trail and making your job that bit harder. Things aren't all black, though – benefits appear frequently at random places on the level, and depending on which ones you collect you can stop the nasties for a short time, or you can drop a bomb for a nasty to run into (has the same effect, but only works for one nasty per bomb).

Zoom! may have better graphics than the earlier arcade versions, but the gameplay's just the same and after a short while you'll find it becomes very dull. It may have been fun about eight years ago, but things have moved on since then.

● Andy Smith



You can afford to smile at the moment - you've only got one nasty to avoid.

RELEASE BOX		
AMIGA	£19.95dk	OUT NOW
ATARI ST	£19.95dk	IMMINENT

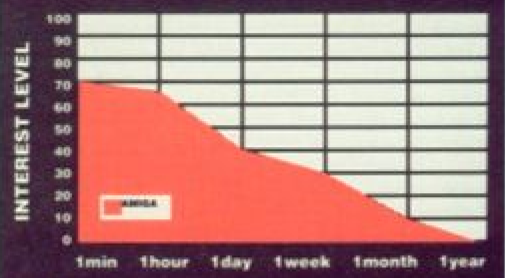
AMIGA VERSION

Giving the game a pseudo 3D perspective doesn't alter the tediousness of the old game style. You'll have soon seen everything the game has to offer and it's doubtful you'll remain playing it for long.

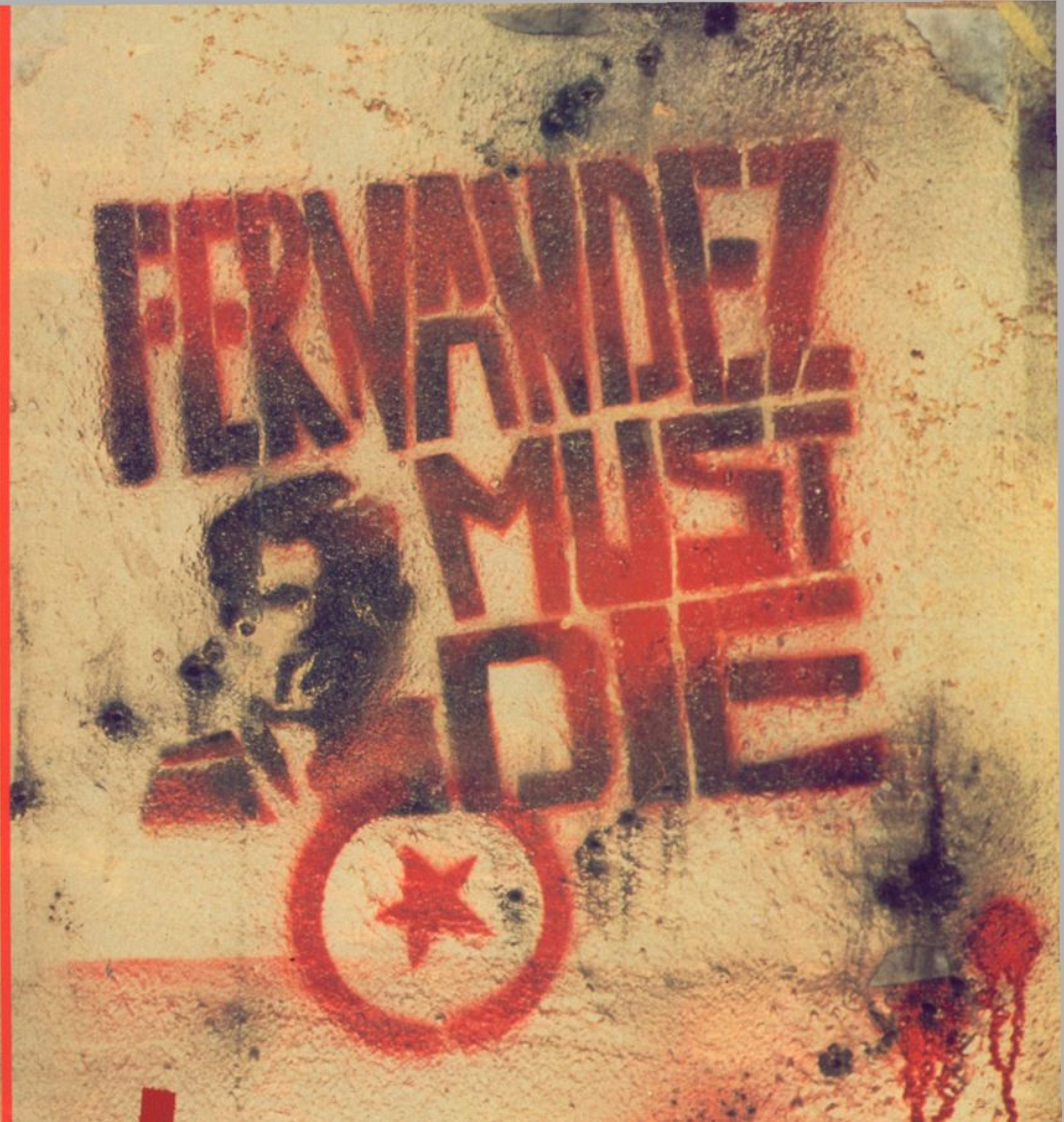
GRAPHICS	**4**	**IQ FACTOR**	**2**
AUDIO	**5**	**FUN FACTOR**	**5**

ACE RATING 428

PREDICTED INTEREST CURVE



Great several years ago, *Zoom!* doesn't cut the mustard today.



In the distant jungles of Central America, revolution is in the air. The government of the Democratic Republic of El Diablo has been brutally overthrown and the evil despot known only as Fernandez rules the land.

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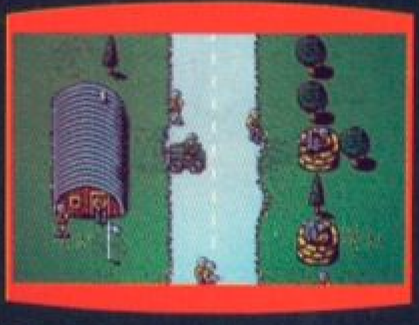

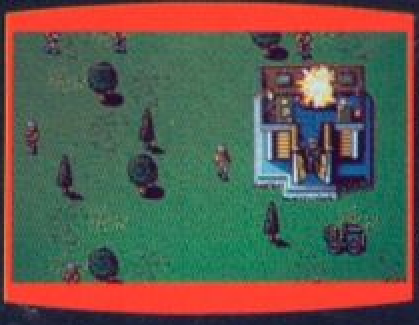

Atari ST screen shots shown

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Atari ST screen shot

Commodore screen shot

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FOXX FIGHTS BACK

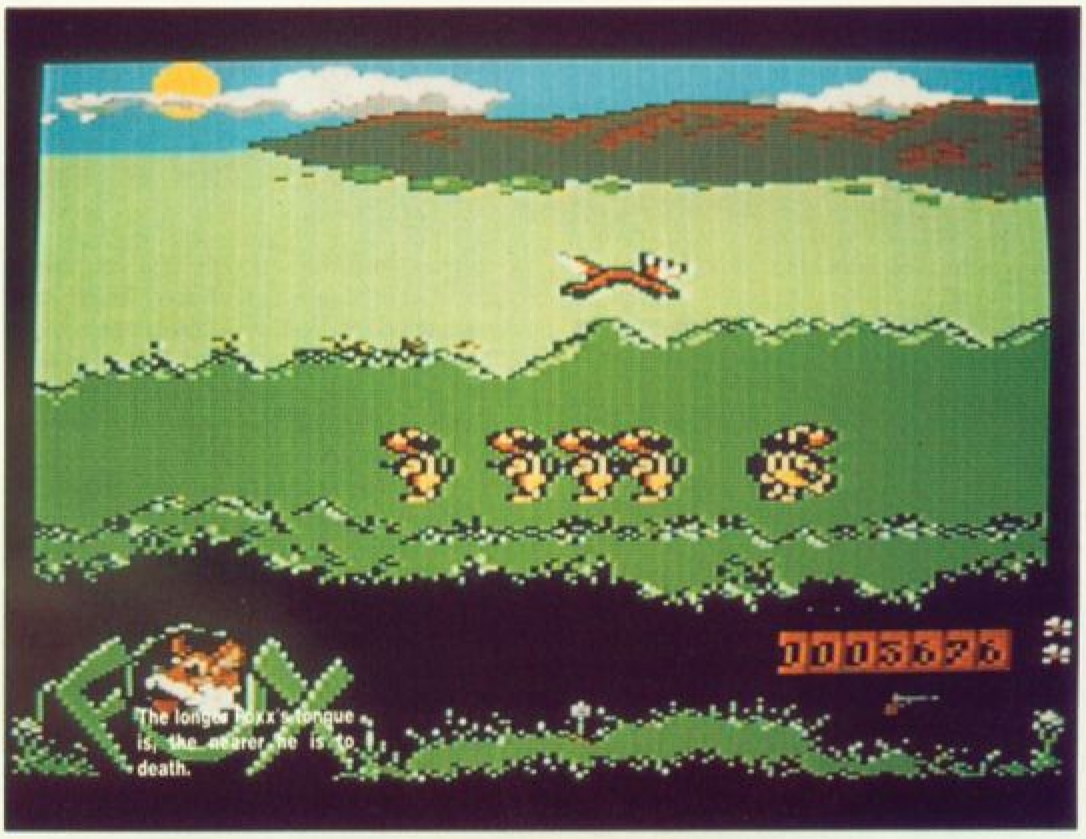
Beagle blasting with IMAGEWORKS

HUNT saboteurs are going to have a whale of a time playing this, as will anybody who enjoys siding with the underdog (under*fox*?). Just like Peter Finch in *Network*, this fox is mad as hell and he's not going to take any more. Armed to the teeth, he's going to get his own back on the blood-thirsty beagles and keep his family fed as well.

Foxx is fighting for his life in some pleasant, horizontally scrolling countryside. He lopes over the ground and can take great leaps through the air. He's on the lookout for items of food to take back to his den, where his vixen waits – ready to clout him if he returns empty handed.

The scrolling levels are very big indeed and it's tough surviving the journeys across them. Fortunately there are underground short-cuts, but these aren't open until you've been through the entrance that's furthest away from home. These burrows can also provide a respite from the action, not to mention bunny rabbits to keep you fed and healthy. As well as the rabbits you can replenish energy by grabbing chickens from coops and by delivering food to the den.

Youre stamina is reduced when you run into the animals that have got it in for you or the objects that some of them throw at you. Stamina is shown by the lolling tongue on the screen – let it get too long and he'll die. More abrupt endings are caused by falling into water or leaping head first into a wall.



You're up on the hill with a pack of beagles below – for the moment you're safe.

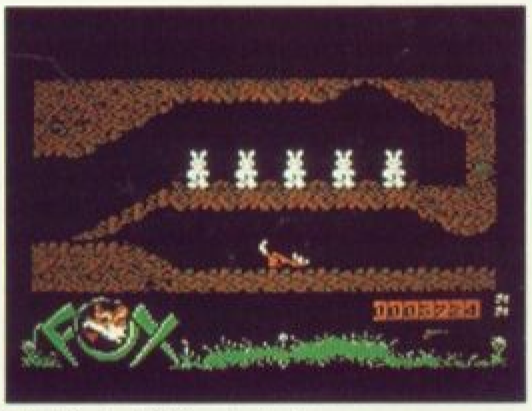
The enemy you'll come across most frequently are the beagles. They chase after you but are slower than you. Therefore to catch up they hop on their mopeds, speed past you and leap off again to attack you. It may sound silly but it's funny and is accompanied by a nice sound effect as the bike-borne beagle goes past you. Other nasty hazards are the chickens that dive bomb, the squirrels that throw exploding nuts and the moles hurling boulders.

What the opposition don't have is your gun, which can deal leaden death on a large scale. At first you've only got a pistol, but more effective and rapid firing weapons can be picked up the further you get in the game. The only trouble with this is that it doesn't get rid of the enemy permanently. They'll keep sending wave after wave of expendable wildlife at you. This means you've always got to be on the move through the danger areas – blasting, jumping and running.

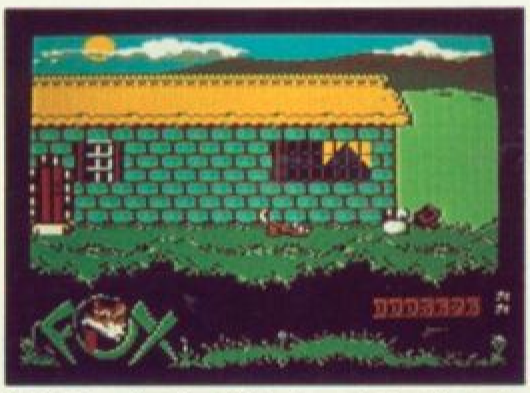
As well as going underground you can keep out of trouble sometimes by running up and over hillocks. This is usually handy for keeping away from beagles. Beware of running and jumping headlong everywhere because it's easy to leap straight into head-on collisions with walls or run slap-bang into a pool.

It's a sort of cross between a scrolling shoot-em-up and a platform game – and it works quite well. It's pretty tough going but the play area and difficulty mean it's going to test you for a long while. The humour and cute animal action also mean it's got plenty of initial attraction. It's not a classic by a long shot but it's got plenty to get your fangs into.

● Bob Wade



Lots of lovely edible bunnies in a burrow – num num...



Next to the wall on the right is a piece of collectable food.

RELEASE BOX

C64	£9.99cs, £12.99dk	OUT NOW
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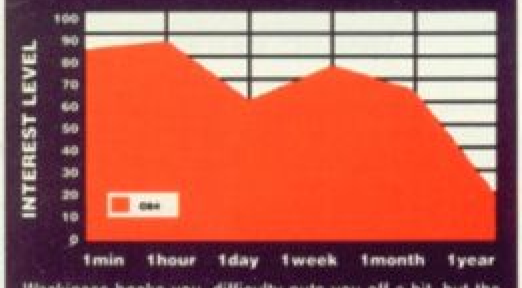
C64 VERSION

The scrolling is impeccable as you'd expect. The graphics are detailed and varied – woods, grassland, cottages, fences, walls and so on. The music and sound effects are well put together – the best part being the beagles on mopeds.

GRAPHICS	7	IQ FACTOR	1
AUDIO	6	FUN FACTOR	7

ACE RATING 808

PREDICTED INTEREST CURVE



Wackiness hooks you, difficulty puts you off a bit, but the lasting challenge is there.

BIG BANG

ZORTECH's sound investment

IS there anything more boring than stocks and shares? Apart from chartered accountancy, surely not? It doesn't help that the manual that comes with *Big Bang* is the size of a modest paperback.

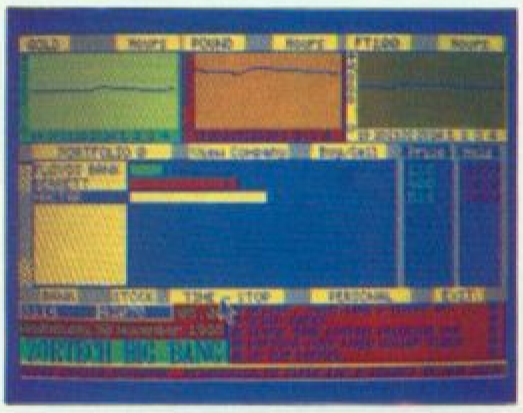
At first sight, the interplay between various commodity prices, currency exchange rates and market fluctuations would appear to be just too complicated for ordinary mortals to fathom. Persevere, though, and you'll soon discover that the world of speculation and investment is – incredibly – utterly absorbing.

Vital news items come across on the tickertape at the bottom of the screen, but there are three commodity prices – oil, gold and steel – to watch, as well as the relative strengths of the world's three main currencies – the pound, dollar and yen. A third graph tells you the state of the share index prices – a guide to the general state of the economy – which are the FT100 for the UK, the Dow Index for the US and the Japan 100. Timescales for all three graphs can be varied between hours, days and months.

If all this is starting to sound a little complicated, the best is yet to come. There are over 100 companies you can invest in, each of whose share prices will be influenced by a whole load of factors. *Big Bang* is not so much a game as a stock market simulation.

If you can overcome the initial hurdles of the daunting manual and super-complex display (and price!), and if you've got any entrepreneurial blood in you at all you'll be hooked. There's no quick or easy way to the top, either – *Big Bang* will keep you going for a long time to come.

● Rod Lawton



Floyds Bank's share prices have dropped since you bought, but must surely be set to rise with Third World interest payments now coming in. And with a predicted boom in out-of-town developments, investment in construction firms Berret and Mactar is beginning to pay off.

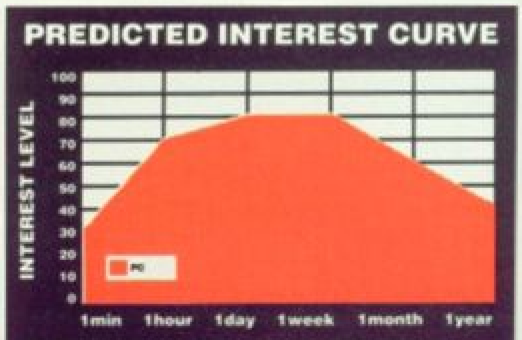
RELEASE BOX		
IBM PC	£49.95dk	OUT NOW
No other versions planned		

IBM PC VERSION

The display is very complex, and very...er...colourful. Mouse control is to be preferred as using the keys is clumsy, with different keystrokes for large and small movements of the pointer.

GRAPHICS	1	IQ FACTOR	8
AUDIO	4	FUN FACTOR	5

ACE RATING 773



Horrifyingly complex at first, but real lasting interest.

INSIDE TRADER

COSMI's Wall Street Shuffle

WHEELING and dealing on the stock exchange can be a very profitable pastime – except when things start to go wrong. In *Inside Trader*, you're looking to make your fortune by investing in the right companies at the right time, and selling when you're likely to make a killing.

The monitor is divided into the Wire Service Window, where all the incoming snippets of news are displayed, and next to it the Ticker-Tape Window, which displays current share prices. The bottom part of the screen contains the Command Entry Window, which is where you tell the computer to buy or sell shares.

The object of the game is simply to become a billionaire. You start with a meagre $50,000 and you can either play the game legally and try to make your money through using your own skill and judgement, or you can buy snippets of inside information that will usually allow you to clean up. Unfortunately, insider dealing is strictly illegal, and should you get caught by the Securities and Exchange Commission, you're liable to recieve a hefty fine – or worse still, end up in jail.

It sounds like fun, so it's a shame then that you should never *need* to buy any inside information. The game's far too easy to beat even if you play it clean. The price of shares never drops below $1, and companies never go bankrupt, so all you have to do is buy shares in a company that's selling for $1 and wait for the price to rise, then sell and reinvest in another $1 company. Soon the money starts to pile up and the more you make, the quicker you're able to make more.

Even when you 'play the game' by listening to information and making risky investments, you'll find it doesn't take long before you're a billionaire.

The game does allow you to add your own company names, and news and inside information, but once you've played it a couple of times it's doubtful you'll bother again.

● Andy Smith

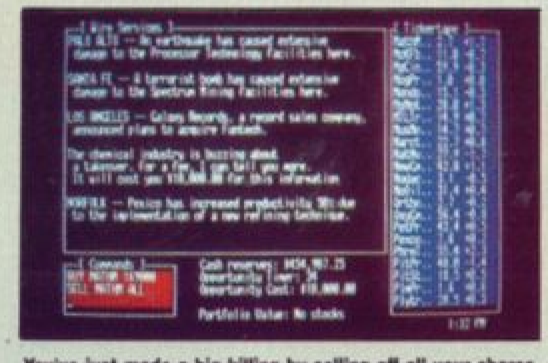
RELEASE BOX		
IBM PC	£24.95dk	OUT NOW
No other versions planned		

IBM PC VERSION

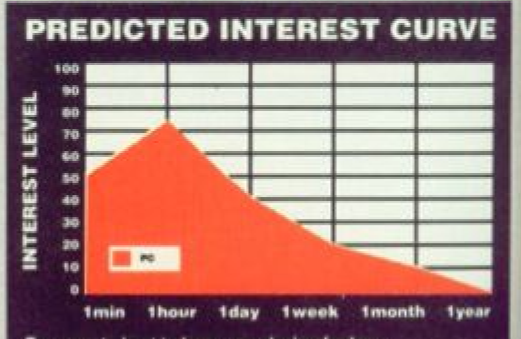
As you might expect with a screen that's full of text, it's not exciting stuff to look at. The game plays well enough and things happen on the market at a break-neck pace, but it's too easy to beat and as such, won't keep you interested for very long at all.

GRAPHICS	N/A	IQ FACTOR	4
AUDIO	3	FUN FACTOR	6

ACE RATING 404

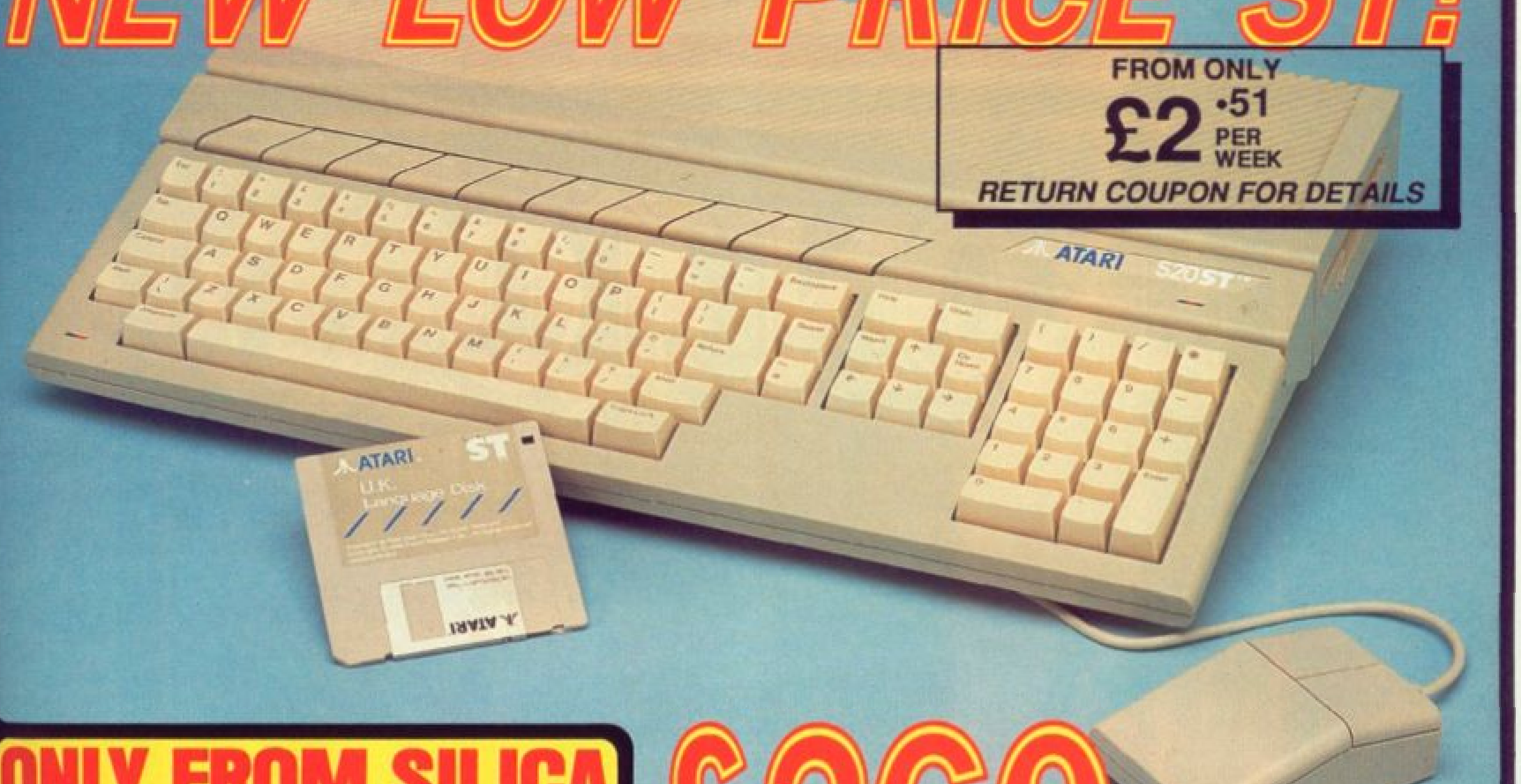


You've just made a big killing by selling off all your shares in Math M – now look for another prime target.



Too easy to beat to keep you playing for long.

NEW LOW PRICE ST!



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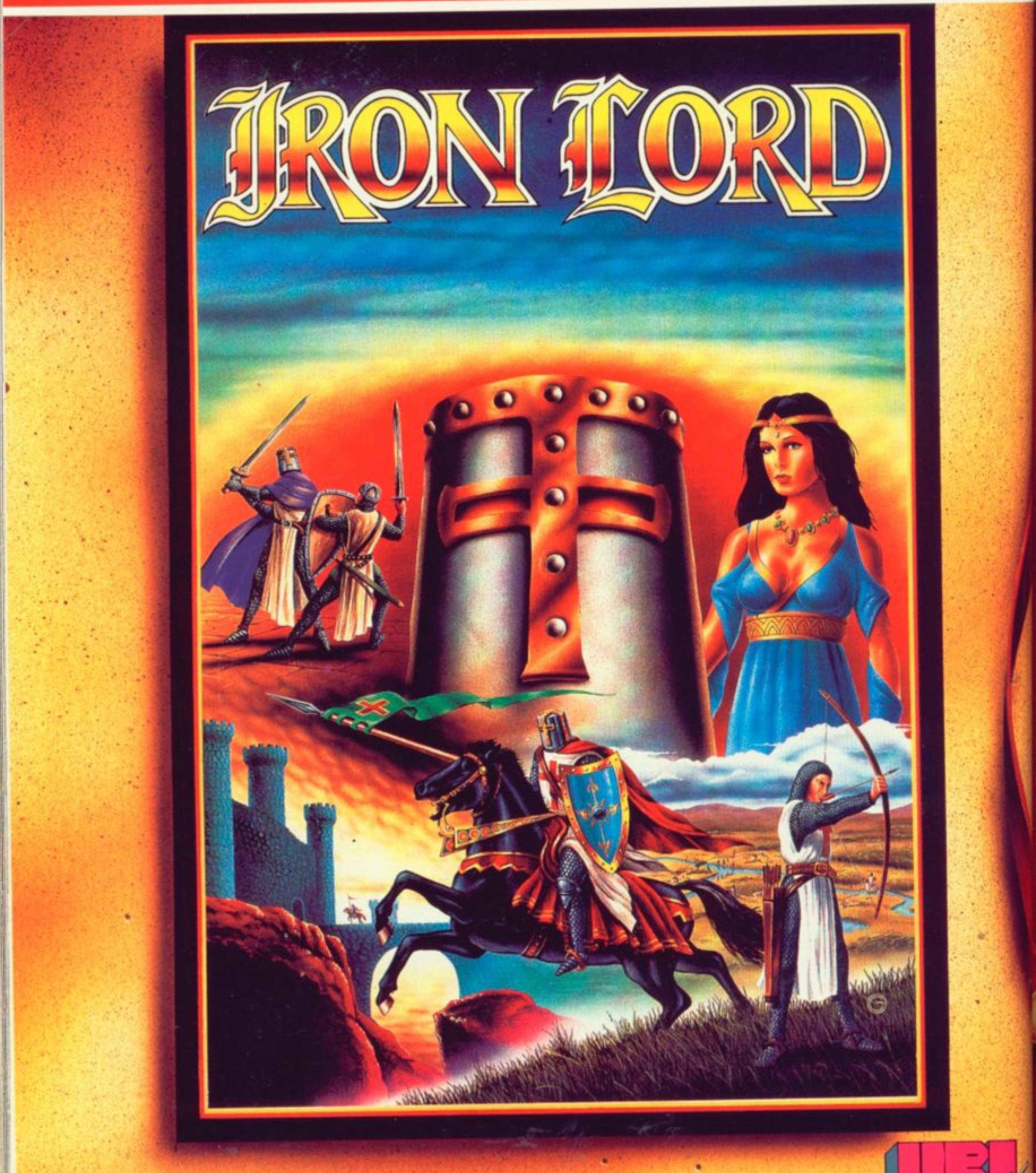
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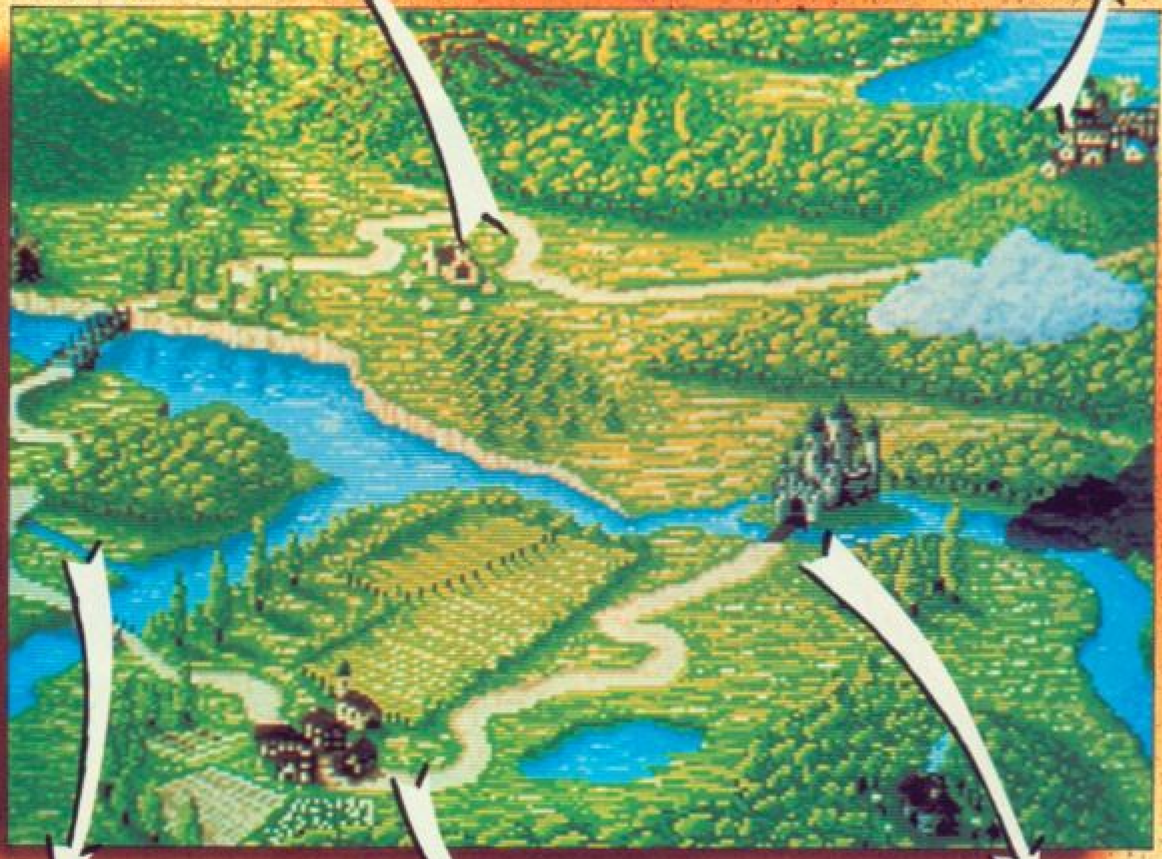
The Age of Chivalry

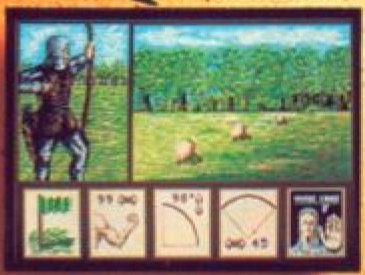
Screenshot on ST

Screenshot on C 64



Screenshot on Amiga

Screenshot on ST



Screenshot on ST

Screenshot on ST

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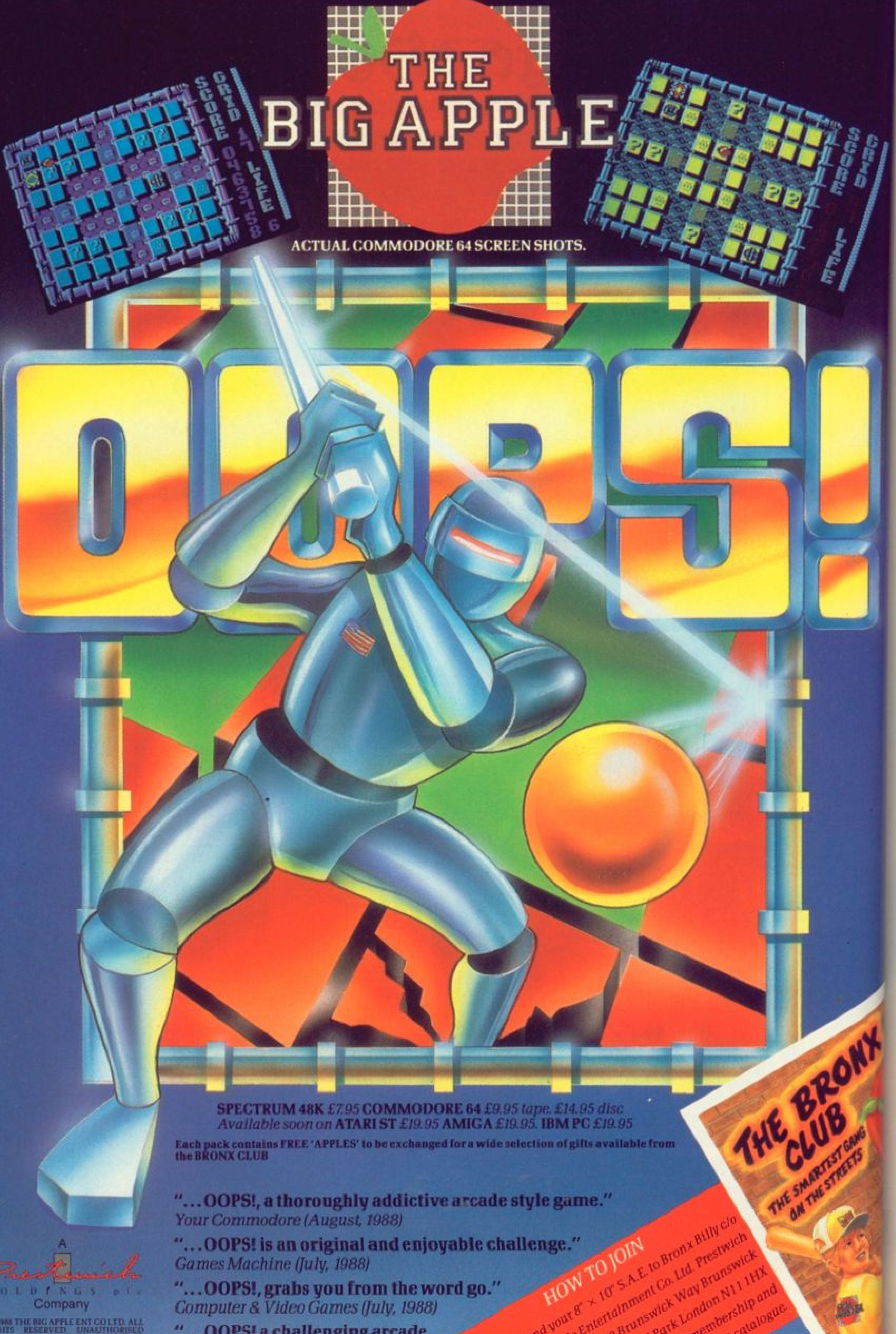
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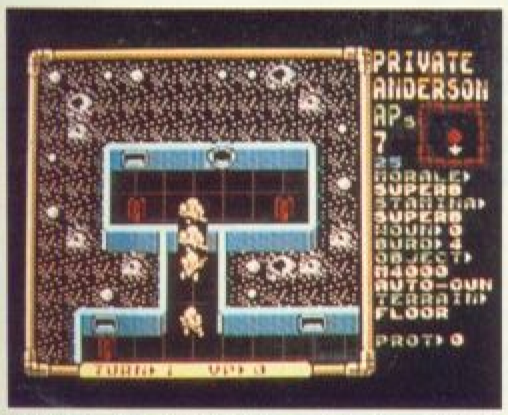
LASER SQUAD

Hitting the TARGET

HIGHLIGHTING the increasing popularity of strategy/wargame software is this tactical warfare simulation from Target Games.

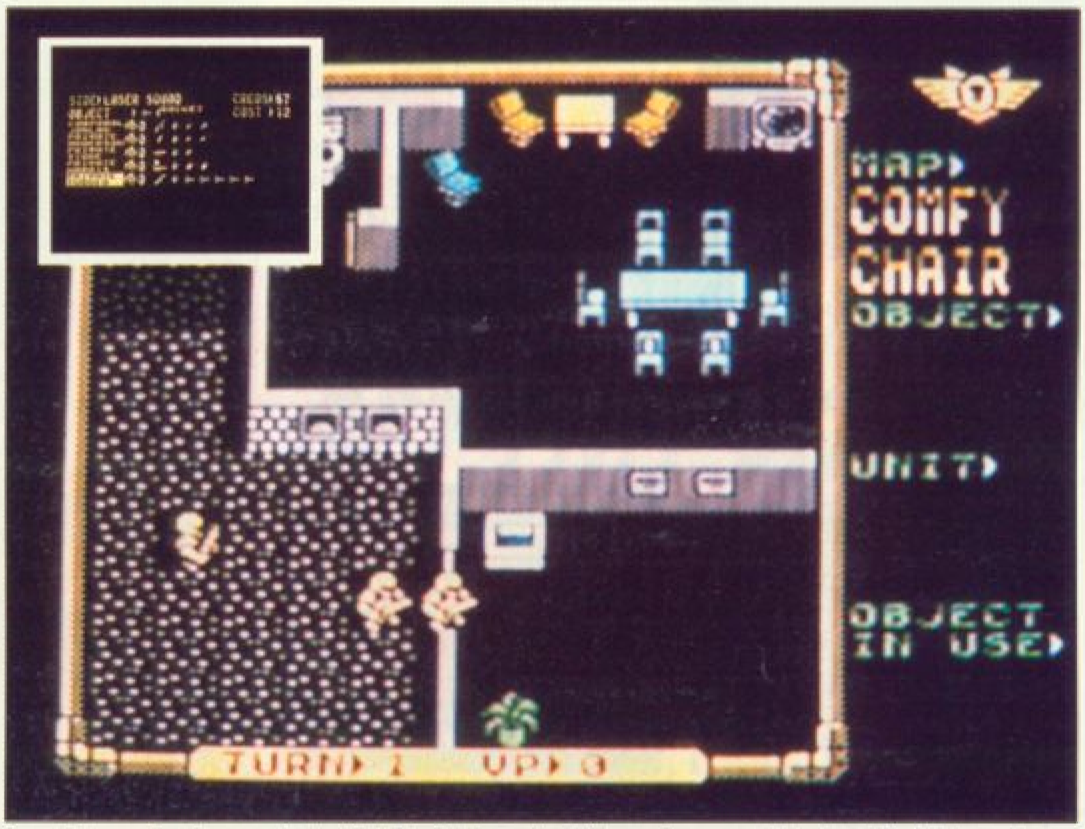
Laser Squad comes complete with the main program and three separate scenarios, with other scenarios to be released later. Once you've loaded the main program you're asked which scenario you'd like to play. The first game takes place on the planet CX-1, at the home of the evil Sterner Regnix – boss of the Marsec corporation. He's being naughty and using mind control drugs and cybernetic implants on his scientists. You take control of a group of ex-employees who are out to assassinate Sterner.

In the second scenario you control another group of Rebels, aiming to devastate a moon base owned by the Omni corporation (who aren't too keen on what the Rebels have been up to lately). In the third scenario you're trying to rescue three Rebels held captive in a mine complex. You have to break them out of their cells and ensure they reach the elevators safely.



Scenario 2 - your Rebels start wrecking the equipment inside the moonbase.

The game plays in the same way for each scenario. You first decide on how much armour your Rebels should wear, and what weapons they should carry. You buy equipment by exchanging a limited amount of credits for goods. Generally, the better the weapon, the more expensive it is, so you have to juggle things occasionally.



Scenario 1 - your band prepares to burst into Regnix's house. (Inset) The arming screen at the start of the third scenario..

Then you get into the game proper. You control each member of your team in turn, and each character has a limited number of Action Points for that turn. Points are used up by moving, loading weapons, firing etc. When you're playing in one-player mode – each scenario can handle either one or two-players, with several difficulty levels incorporated for the one-player games – the computer uses hidden movement of its forces to keep you guessing.

When in combat in the game, you can only fire at targets that you can see – that is, they have to be within your field of vision and not behind closed doors etc. Once you've spotted a target, and depending on your weapon, you get the chance of several types of shot. An aimed shot at an enemy costs the most Action Points, but you're more likely to hit your target, whereas a snap shot costs less and is less accurate. Beware of what shots you're using in certain places, as you may be unlucky enough to miss the target and destroy certain scenery that could prove disastrous to anyone in the vicinity (like gas cannisters in scenario two!).

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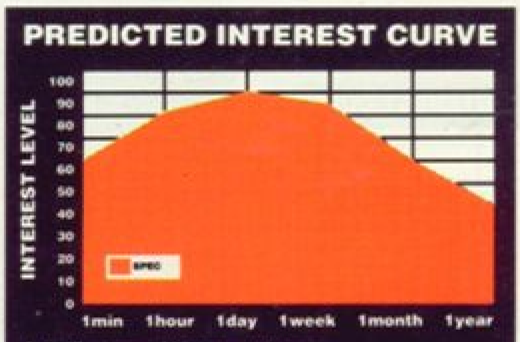


A terrific game, with more yet to come.

A nice feature of the weapons side of the game is the inclusion of time-based weapons, i.e. you can prime explosives to go off several turns ahead (when you've got your team clear and the enemy look likely to be right on top of your booby trap).

Each game is limited to a number of turns, this number depending on the scenario, and the game is won by accumulating 100 victory points. You may get awarded points for destroying certain pieces of equipment or by destroying enemy characters, or a combination of the two.

SPECTRUM VERSION

The 3D graphics are great. The control method takes a little while to get used to, but is very easy once you know it's limitations. The multiple difficulty levels and the two-player options mean you'll be playing *Laser Squad* for a long time, and the future scenarios adds even more lasting interest.

GRAPHICS	**7**	**IQ FACTOR**	**7**
AUDIO	**5**	**FUN FACTOR**	**8**

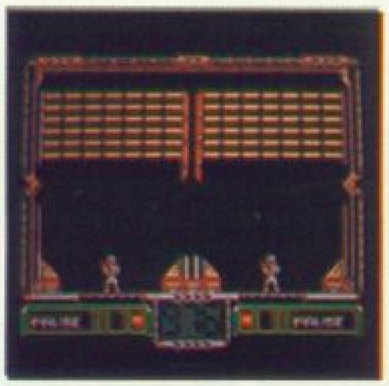
ACE RATING 873

Target Games have not only managed to produce a great game in *Laser Squad*, but the whole game system and the ability to play further scenarios when they're released makes this almost indispensible for 8-bit tactical wargame fans.

● Andy Smith

HOTSHOT

ADDICTIVE's double barrel



THIS is a strange mixture of game styles, incorporating elements of *Breakout* and pinball. It's a two-player game either against the computer or another player. There are a number of different characters you can control, each with slightly different characteristics.

The screens consist of *Breakout* and pinball layouts with you at the bottom. A ball is fired on screen and using sucker-guns you can attract it and then fire it up the screen. To progress you have to score a set number of points before the time runs out or you get hit by the ball. It's addictive stuff but lacks depth and variety because there aren't many screens and they get tough too soon.

●Bob Wade

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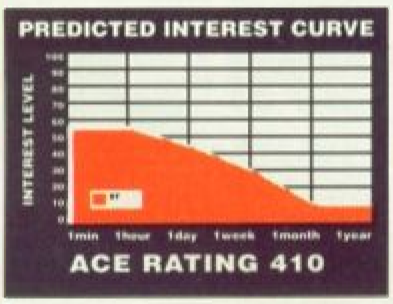

ACE RATING 410

METAPLEX

ADDICTIVE step backwards

ASTEROIDS are interesting things. According to Addictive, the one in this game houses a huge metal complex that's guarded by an evil two-headed being called Garth – who's determined to destroy the world.

It's your job to foil Garth's plans by destroying the four power units that supply him with his energy by collecting empty flasks and then filling them with acid before dropping them on the power units. Of course, nothing's ever as simple as that. Aliens roam the complex and your space buggy has a limited shield.

Metaplex is a real step back in time; it's got the look and feel of very early arcade adventures and it's very frustrating to play. Fine for those who still hanker for games that are simple to play but incredibly tough to complete.

●Andy Smith

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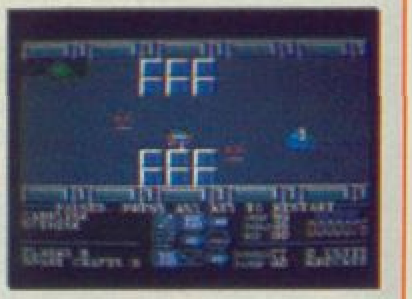
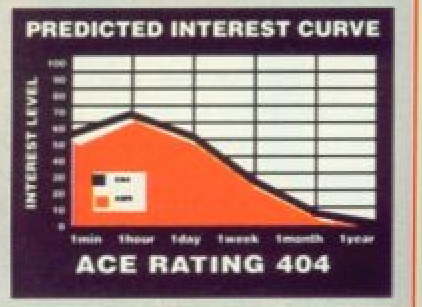
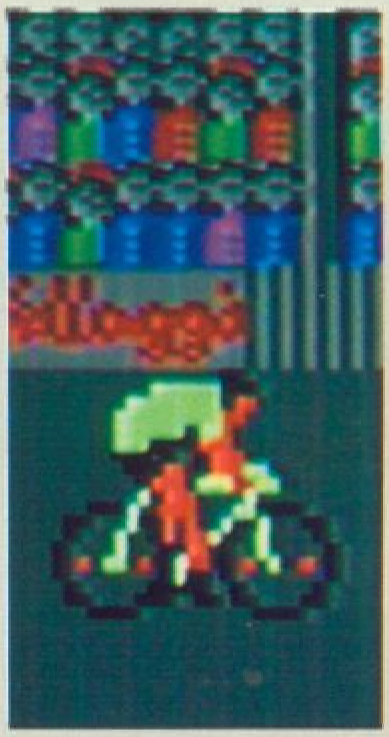




ACE RATING 404

KELLOG'S TOUR

CRL pedal their wares

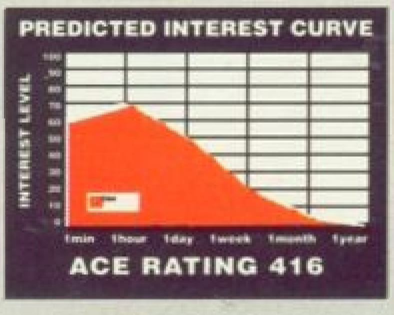


678 miles of gruelling English roads broken down into six stages comprise the Tour of Britain. CRL's attempt to re-create the excitement of the tour has you waggling the joystick to control the pedalling of your on-screen cyclist. You've only got a limited amount of food for each stage and as your stamina goes down, you have to replenish it by eating something.

The game's got very little in it to keep you playing, and it certainly won't take you long to complete.

●Andy Smith

RELEASE BOX		
C64/128	£9.95cs, £14.95dk	OUT NOW
No other versions planned		



ACE RATING 416

STREET SPORTS SOCCER

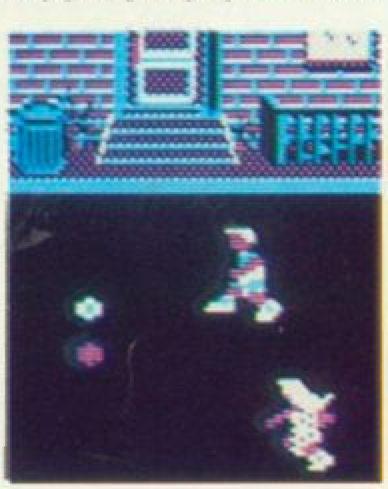
EPYX kick off

BASIC graphics do little for the initial street cred of this uninspired kick-em-up. With only three players a team, things aren't very complicated, but the control method is tricky enough to keep you occupied.

You put your team together from the nine kids who live in the neighbourhood, and either choose a team at random, carefully pick your players for each game, or use an old – and presumably successful – combination you've saved in the past.

Games last either for a specified length of time or until the required number of goals have been scored. There are also three difficulty levels, which will not, alas, do much to keep you playing.

●Rod Lawton



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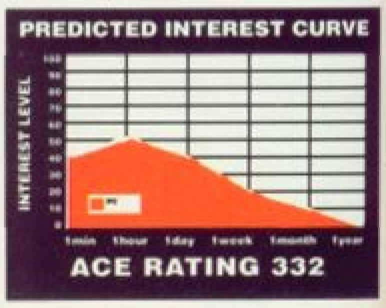

ACE RATING 332

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FIREBIRD

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INTENSITY

FIREBIRD's pick-me-up

RESCUING buddies from the clutches of aliens is a familiar scenario by now, but Andrew Braybrook's latest offering takes the theme into new areas. You control two vessels – a 'skimmer' and a 'drone' – which between them must rescue hapless colonists from a besieged space station.

With all but the simplest screens you'll have to move the drone around to different areas to collect all the men, and this is achieved by placing the skimmer where you want the drone to go and pressing the fire button. The drone will then automatically fly there, so get the skimmer out of the way fast, because a collision will destroy both.

The principle is that the men run to your drone and climb on board while you fly the skimmer around destroying the aliens which whizz around and mutate into skimmer and drone-destroying nasties if you leave them too long. These aliens are fast but harmless at first, and to destroy them you simply have to fly into them. They grow slower as they mutate, but you haven't got much time left to nab 'em by that stage. Dealing with one at a time is OK, but with two or more to keep an eye on as well as a drone to take care of things can get out of hand.

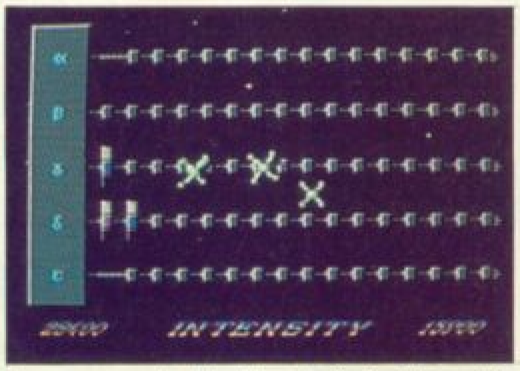
You can exit a level as soon as you accumulate enough men – signalled by the exit symbol flashing – and to leave you must direct the drone to the exit. There's more though. Between screens your progress is shown on what looks like an overblown abacus consisting of five rows of sixteen lights, each light indicating a completed level. To complete the game and launch the escape shuttle you must reach the end of one of these rows. They range in severity from alpha to epsilon, and the route you choose is up to you – collect the minimum number of men on a screen and you move to an easier level; collect a few more and you stay on the same level; collect yet more and you get to move onto a higher level.

And there's more. Every time a man climbs aboard the drone an 'R' symbol is released from

C64 VERSION

Highly competent but uninspiring. It can be pretty tough going without being fun enough to make you persevere.

GRAPHICS 7 **IQ FACTOR** 3
AUDIO 5 **FUN FACTOR** 6
ACE RATING 642



Your progress so far. Head down for that epsilon route to the shuttle and you'll have the best chance of escape.

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SPEC	£7.95cs, £12.95dk	IMMINENT
No other versions planned		

SOLDIER OF

FIREBIRD fight for cash

ZODIAC power sources are nasty things when they're split asunder, so, like any responsible adventurer would, you're going to try to put it back together again.

The setting is a two-dimensional world where you have to track down the correct scrolls and tablets for reforming the power source. It's a similar type of game to Firelord from Hewson, combining blasting monsters with buying and trading objects in shops.

To start with you have a limited-range weapon, weak shield, 100 gold coins and 3 lives. You'll quickly find that the key to getting very far is to make as much money as possible, because it can buy you better weapons and shields, and extra lives. You make money by collecting gold coins, which are produced by shooting monsters.

The coins released by the monsters bounce along the ground and have to be caught. They

RELEASE BOX

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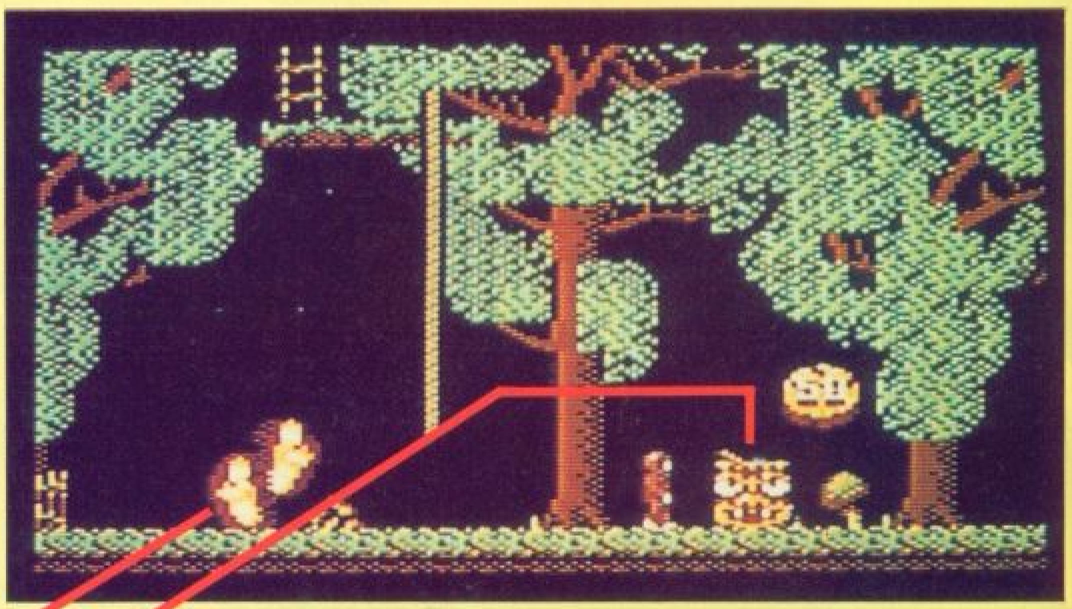
C64 VERSION

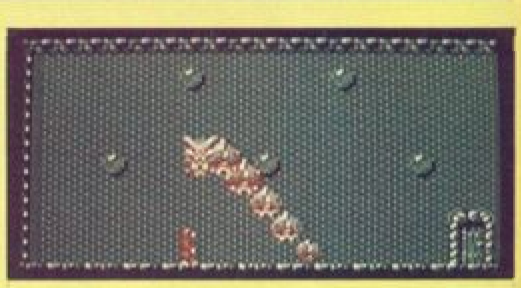
The graphics have a dark, atmospheric feel that nicely complements the action. The sound effects also help this along, particularly the dripping of water from the top of the screen. It's going to be a toughie to finish, but one you can make progress in with practice.

GRAPHICS 6 **IQ FACTOR** 4
AUDIO 6 **FUN FACTOR** 6
ACE RATING 719



This face has just been shot and released a valuable coin – but don't touch the eyes as you try to collect it.

These two fire demons will also release coins when shot.

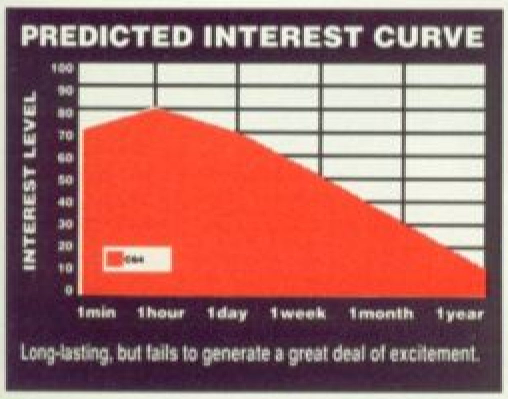


(Right) Inside the House of Fun you encounter a dragon. Multiple hits on it will cause every section of its body to produce a gold coin.

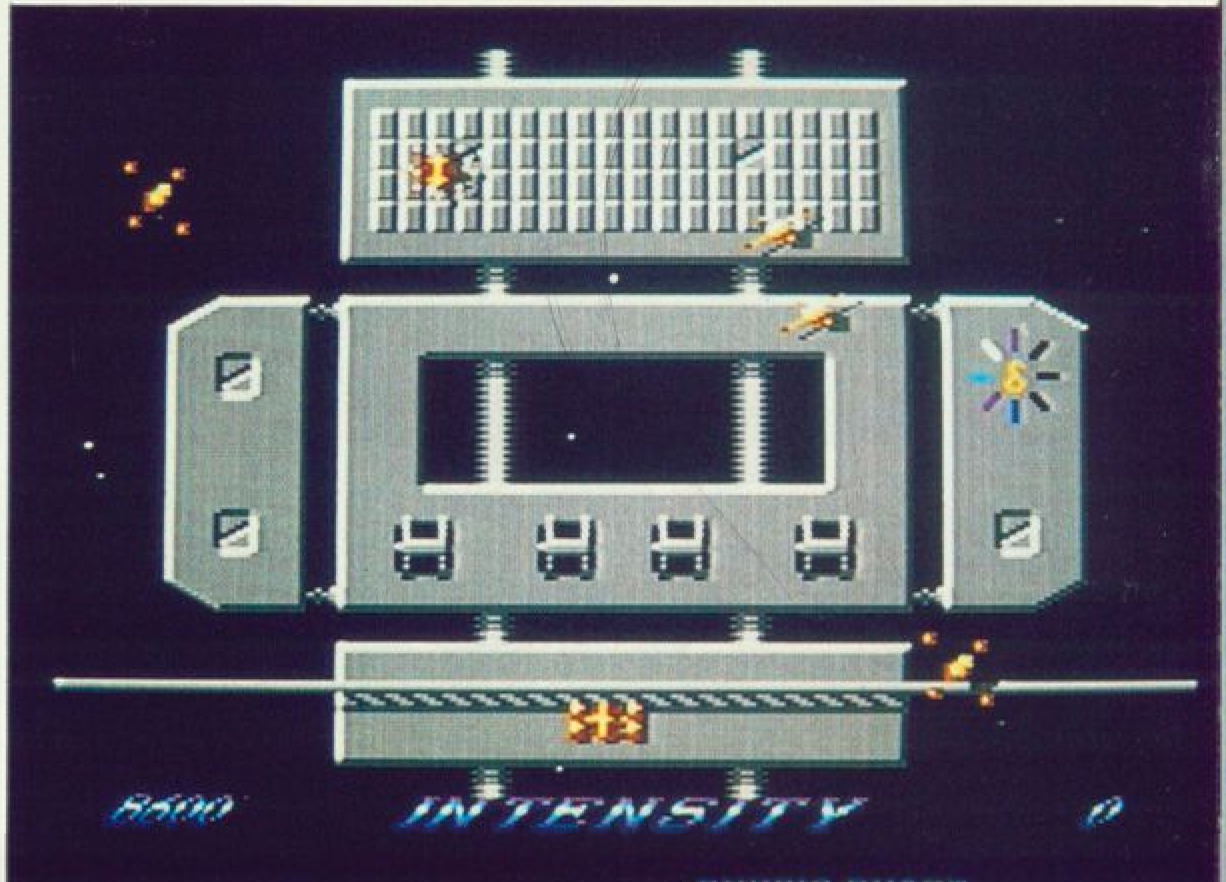
the exit. Collect it, and you gain an 'RU' unit of currency. With these you can order new skimmers or drones. Available as alpha, beta or gamma class, these have varying powers and are priced accordingly. They also take varying times to make, so even if you can afford a gamma class skimmer, will you live long enough to get to use it?

As with Andrew Braybrook's last offering, *Morpheus*, a simple enough game-style has been dressed up with a quite complex game-plan. *Morpheus*, however, was complex without being a great deal of fun – and *Intensity* is little different. Trying to move your drone around to collect those men while fending off the gyrating aliens is tough stuff without being a great deal of fun. There's certainly a big game task, but alas it takes more than that to make a good game.

● Rod Lawton

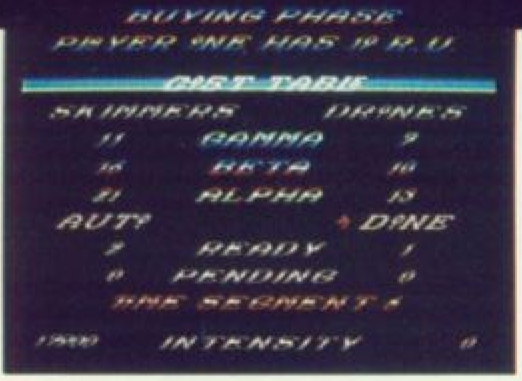


Long-lasting, but fails to generate a great deal of excitement.



(Above) Your skimmer's hovering over the top sector to the left while your drone's in the middle ofl the bottom sector. The exit (right hand sector) is flashing, so you can leave now – but you've got four aliens to contend with on the way. Two of them (top left and bottom right) are so far harmless, but the other two (just to the left of the exit) have mutated and are definitely not harmless...

(Right)The buying phase. With 19 RUs you've got dosh coming out of your ears. You could go for a tough gamma-class skimmer or drone, but with your forces dwindling fast, will they be ready in time?



F FORTUNE

start off with an initial value that gets smaller every time the coin bounces, until it reaches zero and the coin disappears. The highest value coins appear from static faces on the ground, which open their eyes when shot and throw out the coin. You have to be particularly careful with these because sometimes they also throw out monsters when shot and can kill you themselves if you walk into them when their eyes are open.

The other monsters vary in their behaviour patterns, the two basic types being those that can fly and those that can only walk along the ground. If they don't appear from the static faces, they pop up from unmarked materialisation points. You'll need to learn where these are so as to avoid too many collisions. The shield you carry can help withstand hits from aliens, but it's no use if you plunge into a pool – instant death results. -

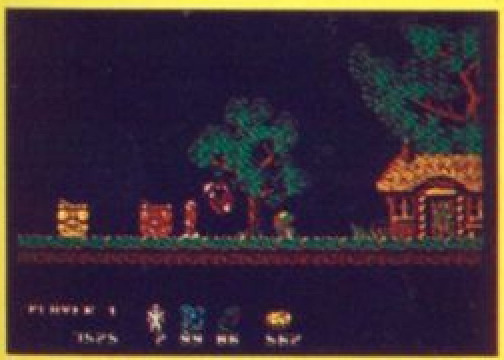
The shield and weapons can be replenished by picking up objects produced by large water drops. These fall from the top of the screen in some places, but not all of them transform when they hit the ground. You also have to rush around to get to the drops because the supplies disappear after a short time.

As well as being able to jump onto things and over gaps, you can climb up ladders and trees. The playing area is higher than one screen, so it scrolls upwards as well. On the ground and up in the skies you'll find doorways into buildings or caves. Going through them will lead to either a shop or another section of the game. Some doors can only be used when you are carrying an 'elemental' – which has to be swapped for other objects.

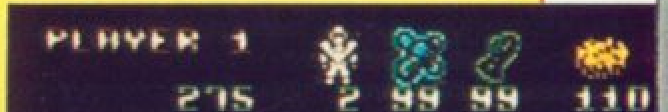
The shops will offer three items for you to buy or swap. These will be extra weapons, shields, lives or scrolls. The first three can be bought any time, although the price goes up the more you buy of something, but the scrolls may have to be exchanged for another scroll as well as the cash.

As you explore further into the game, using the elemental tablets to open up new areas, the opposition gets heavier, so you'll need the right weapons and shields to survive for long. It's mostly a matter of exploring to find the scrolls, made easier by the fact that they're always in the same place. As arcade adventures go it's good. What it lacks is variety – you always have to follow the same pattern – and is made annoying by frustrating deaths. It's addictive stuff, though, because you're always quite close to solving one more part of the quest.

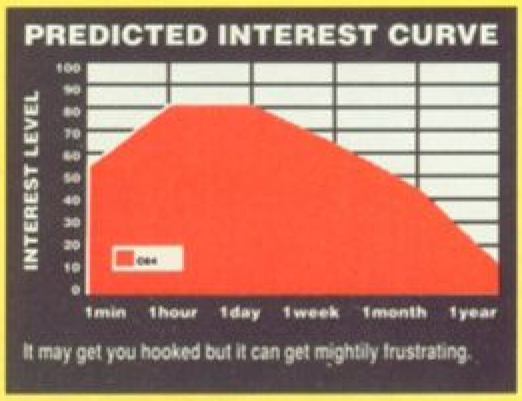
● Bob Wade



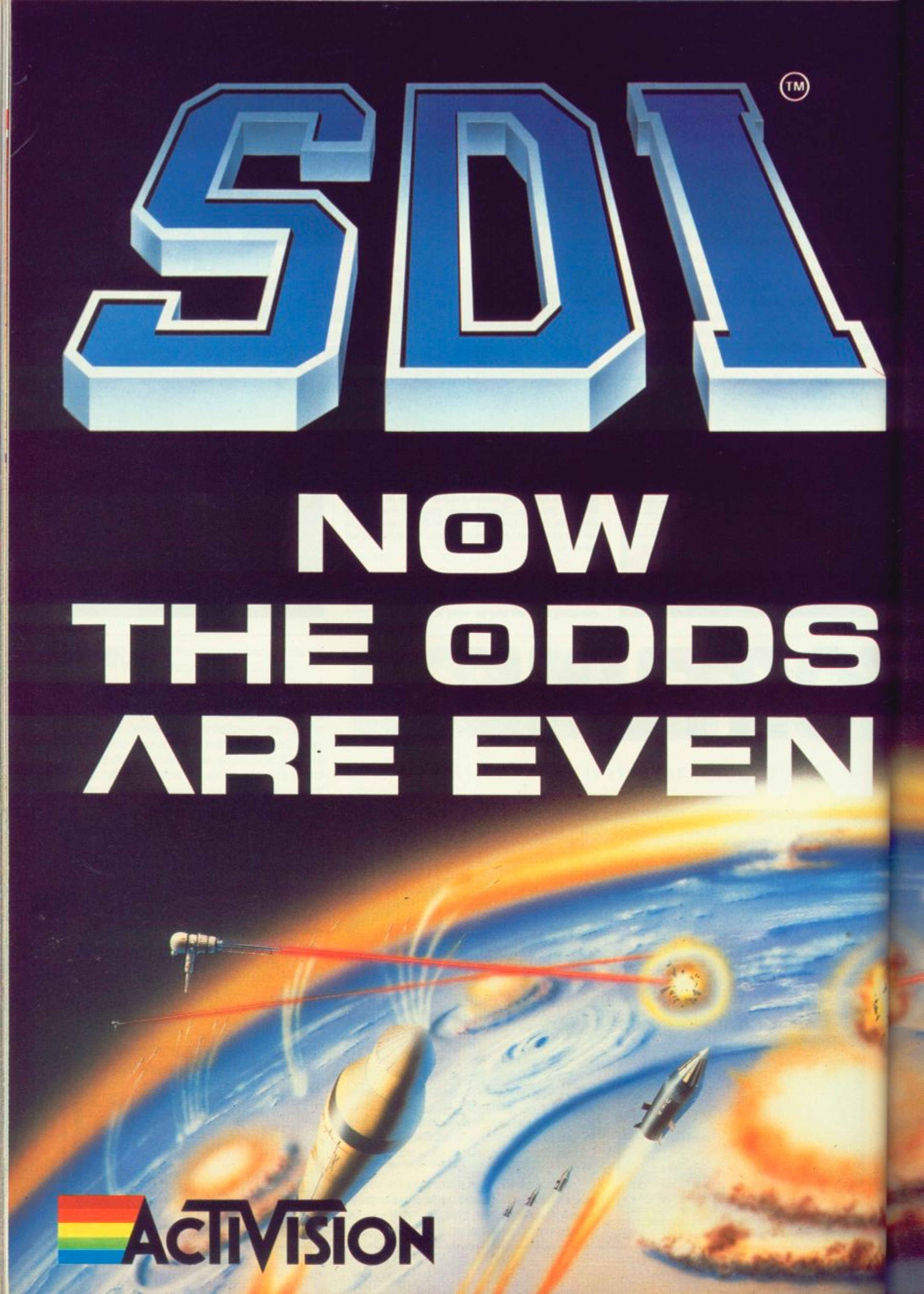
The red faces are much more dangerous than the yellow ones because they release flying demons, one of which is about to hit you from behind. However, they also produce more valuable coins.



Here are the readouts for the number of lives, shots, shield and gold coins.



It may get you hooked but it can get mightily frustrating.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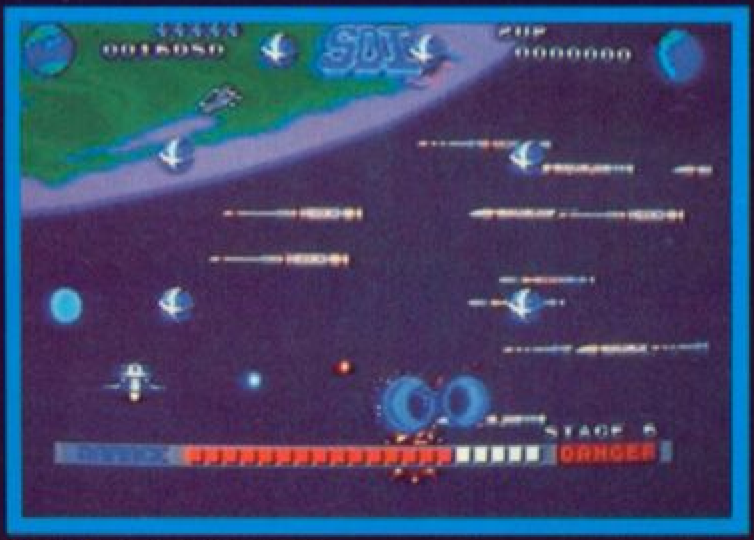

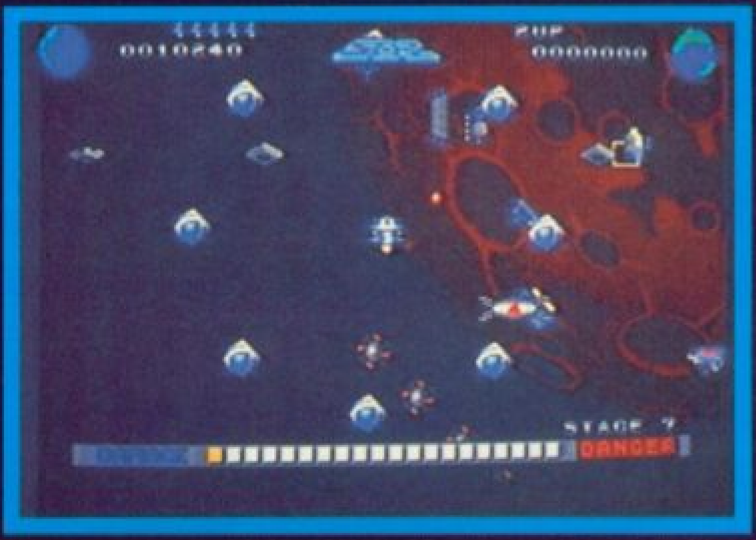

Atari ST screen shots shown

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SORCERY PLUS

UPDATE SPECIAL

ATARI ST ● Virgin £19.95dk

NOW here's a popular old game making a surprise re-appearance in 16-bit form. It was enormously popular in its 8-bit incarnations and even now is quite a good game on those formats. However, converting quite an old game is a risky thing to do just because games have moved on.

It's a classic arcade adventure in which you have to explore a magical land and release other sorcerers. The sorcerer you control can fly all over the 2D screens and carry one object at a time. On most screens he will encounter various monsters, many of whom can fly.

You have to try to release other trapped sorcerers, each one of which is freed by a particular object. The objects are found lying around the screens and come in three types: keys to sorcerers, keys to other doorways, and weapons. You can only carry one object at a time and weapons can only be used once. The keys come in the form of bottles, ordinary keys, shields and fleur-de-lis.

The quest has to be completed within a time limit, but you also face danger from the monsters, who drain your strength, and pools of water that will kill you instantly. The monsters are killed with different weapons, although things like shooting stars can kill anything. What with needing the right objects for releasing sorcerers, opening doors and killing monsters, you end up doing enormous amounts of to-ing and fro-ing.

The Plus part comes in when you rescue all the sorcerors and go into a new section of the game where the monsters, objects and scenery are completely different. Here you have to collect the hearts for a final confrontation with the Necromancer.

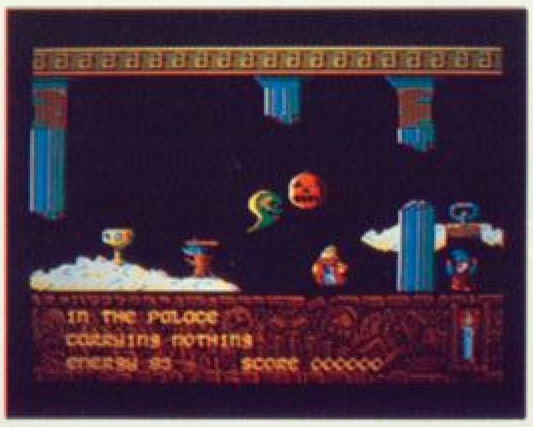
● Bob Wade

ATARI ST VERSION

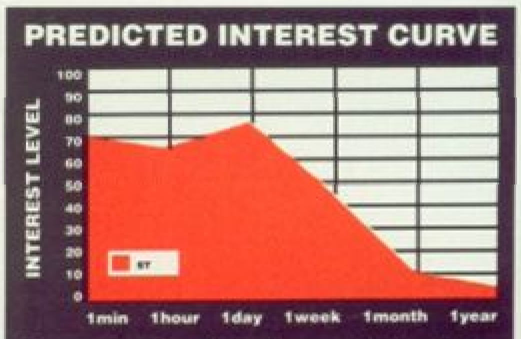
The graphics aren't that much better than the Amstrad ones – but they always were superb. The sound effects are a bit weak, the creaking doors sound like unpleasant bodily functions. It is the best of all the versions but doesn't extend the ST's potential that much.

GRAPHICS	6	IQ FACTOR	4
AUDIO	3	FUN FACTOR	7

ACE RATING 553



If you can find the right object, you can rescue the sorcerer imprisoned behind the trapdoor on the right of the screen.



A very enjoyable and attractive game but hasn't been adapted to keep up with the times.

BUBBLE GHOST

UPDATE SPECIAL

AMIGA ● Ere International £19.95dk

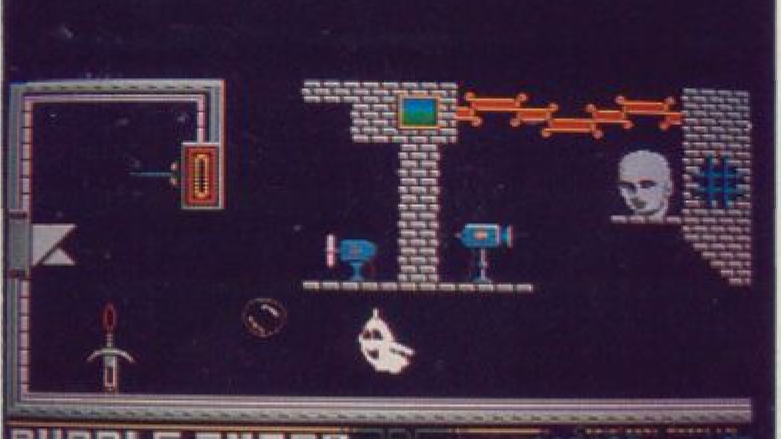
SOUL, that's what you want in a game. In *Bubble Ghost* you get five. This French charmer first appeared on the ST back in issue Four, and it's a game in which you play the part of a ghost trying to guide his soul (represented by a bubble) through the rooms of a castle. But how do you move a bubble without bursting it? Simple – you blow.

The cute little ghost can be rotated full circle to let you blow the bubble at whatever angle is necessary to guide it through the rooms, and as you progress through the castle the hazards get tougher and more varied. Not only that, to collect bonus points you have to beat a stiffish time limit.

The real charm of the game comes from the graphics and the humour. It's also a game where you don't actually have to kill anything! Blow too hard and too long and the little ghost turns red and emits a horrible rasping cough. Complete a screen sucessfully and he will sometimes execute a happy little somersault. There's a puzzling element too, in that many of the hazards and obstacles can only be successfully switched off by...well, perhaps that's something you should work out for yourselves.

Bubble Ghost is funny, entertaining and quite a challenge. It's just a pity then that there are only forty odd rooms to get through – given the games immense playability and addictiveness you're going to complete it all too soon.

● Rod Lawton



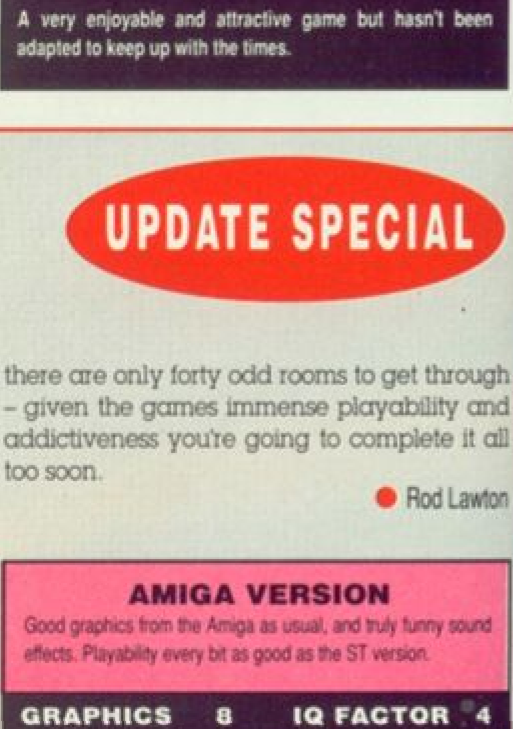
That fan's going to blow your bubble all over the place – but how do you turn it off?

AMIGA VERSION

Good graphics from the Amiga as usual, and truly funny sound effects. Playability every bit as good as the ST version.

GRAPHICS	8	IQ FACTOR	4
AUDIO	8	FUN FACTOR	9

ACE RATING 797



If it wasn't so much fun it might last longer! As it is, you'll complete it all too soon.

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HITTING T

Microprose are one of the leading simulation houses with titles like *Gunship*, *F19 Stealth Fighter*, and *Silent Service*. Now they've come up with a game that's so hot they can't find a machine that will handle it...so they're building their own. Steve Cooke flew to the States to check out a company that thinks the only way to go is up, up, and away...

A few years back a small company called Atari revolutionised the entertainment industry with its range of coin-operated video consoles. Starting with *Pong* and *Computer Space*, the company has been through many incarnations since, now ending up in the hands of ex-Commodore entrepreneur Jack Tramiel and staking its future on the ST.

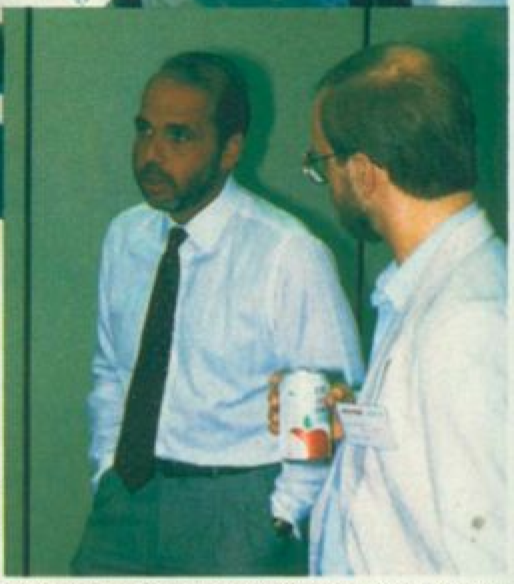
Back in the early days, however, it was run by two whizz-kids by the names of Nolan Bushnell and Gene Lipkin. Bushnell has moved over into micro-processor controlled toys and Gene Lipkin has moved over to...Microprose. What's going on?

State-of-the-art flight sims, that's what. After developing a superb EGA version of *F19* for the PC, Major 'Wild Bill' Stealey and programming wizard Sid Meier came up against an apparently insoluble problem. *F19* was resolving around 300 polygons per second on the PC version, but it just wasn't fast enough for them. Other 16-bit micros (the Amiga, for example) can't offer much more, so the only plausible solution seemed to be develop their own. Enter Gene Lipkin.

POWERFUL STUFF

'We've looked closely at the computer graphics area', says Gene, 'and what you're seeing is really comic-book graphics – that's essentially 2D stuff. Our commitment is to polygon graphics – true solid 3D – and long-term playability to go with them.'

Top Secret! Where the blue carpet starts, you stop. This doorway marks the beginning of Microprose's 'restricted entry' area where game development is carried out. A sneak ACE mission into forbidden territory was seen off by...a herd of plastic dinosaurs! Apparently Sid Meier has a soft spot for saurians.



Gene Lipkin, co-founder of Atari, talking with US journalists at a recent Microprose press day. His joining Microprose promises an exciting partnership between the coin-op world and home computer software development – and a possible home micro release in 1989?

Bill Stealey remarks that 'At Microprose, we've always been worked up about the limitations of the hardware. That's not a criticism of the hardware – we're very fond of the Commodore 64, for example – but it just doesn't enable us to produce the sort of game we're really looking for.' Gene Lipkin cites *F19* as an example – 'We're going far beyond that. Our system will have 4096 colours on-screen at once and can handle 2000 polygons simultaneously on-screen at 30 frames a second.' You don't need to be a genius to work out that that adds up to 60,000 polygons a second – an extraordinary amount of power if it can really be produced.

Gene's in no doubt about that. Work started last October and the first prototype is on target for release at the end of this year. 'We're in the process of building a computer tied directly to graphics capability. The first product will be a flight game and promises to be the most unique product the industry has seen for several years,' he says confidently.

The company have also looked carefully at dedicated mechanical consoles and agree that there is 'a lot we can do in terms of configuration', but they're not letting any secrets out of the bag, apart from saying that 'our cockpit will look like a cockpit.' However, they are sensibly drawing the line at attempting to create something totally realistic – 'We can't get too carried away by reality,' points out Gene, 'because we're not selling reality, we're selling fun.' As for gameplay, the company emphasise that although the hardware is of paramount importance, it will always be subordinated to game design and long-term interest.

THE HARD STUFF

'We're going to do it the special Microprose way,' says Major Bill, 'with our kind of gameplay'.

HOME MATCH

Microprose's first move is going to be into the coin-op area. 'Ever since the crash of 1983/4,' says Gene, 'the market's been recovering. It's now worth around $500 million dollars worldwide. A share of that market is available to anyone who comes in with a hit product and we aim to be a driving force in the industry well into the 1990's.' The story doesn't stop there, however.

Once you've got a working system capable of this sort of power, with software to run on it, what's to stop you putting it into the home? 'Nothing at all,' agree the company, 'there will be other business possibilities.' In other words, a Microprose micro? 'We don't want to talk about those possibilities right now,' they hedge, but the intention is obviously there.

A home micro capable of that sort of performance, linked to the units in the arcades, could be a formidable machine. Furthermore, if it succeeded, it would be the first time in the entertainment industry that someone had come up with a hardware solution to a software entertainment problem.

Games development could end up driving machine production for once, instead of the other way round. Once that happens, and falling chip production prices start making dedicated hardware development a cheaper exercise, we'll really be entering a no-limits game environment. ●

(Above) Major 'Wild Bill' Stealey's pet - Miss Microprose. Company employees are taken for terrifying aerobatic spins across the Chesapeake Bay, then sent back to sit in front of their micros and produce the ultimate flight sim. No wonder they need a new machine to write them on! (Inset) The man himself.

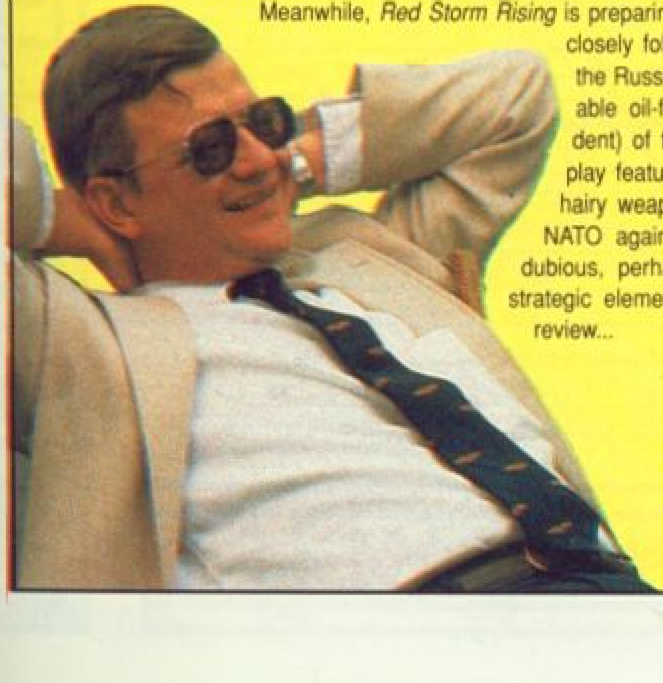
(Left) Up in the skies. when you're used to a real life display like this one, it's not surprising that the Commodore 64's colour and screen-handling doesn't quite deliver the goods.

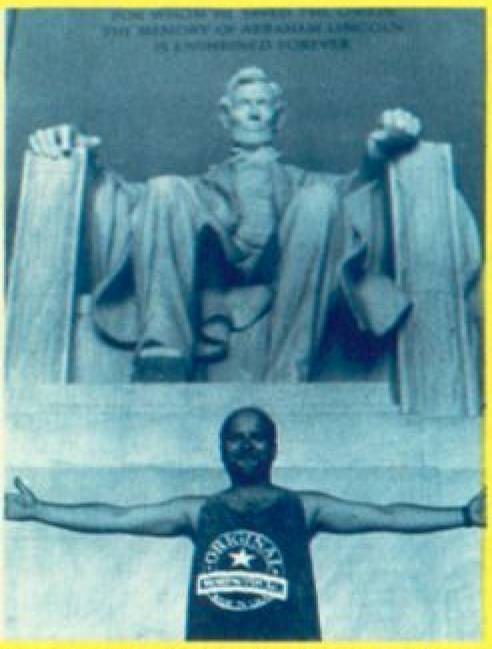
(Right) Cockpit controls for Major Bill's baby. The Microprose coin-op flight sim is reputed to feature a full-spec cockpit display - but it's unlikely to have as many knobs as this one. Journalists and company employees live in terror of the little knob and lever at the extreme lower left of the display - nudge it with your knee when you're getting out of the plane and the whole shebang collapses on the tarmac as the undercarriage retracts!

RED STORM RISING

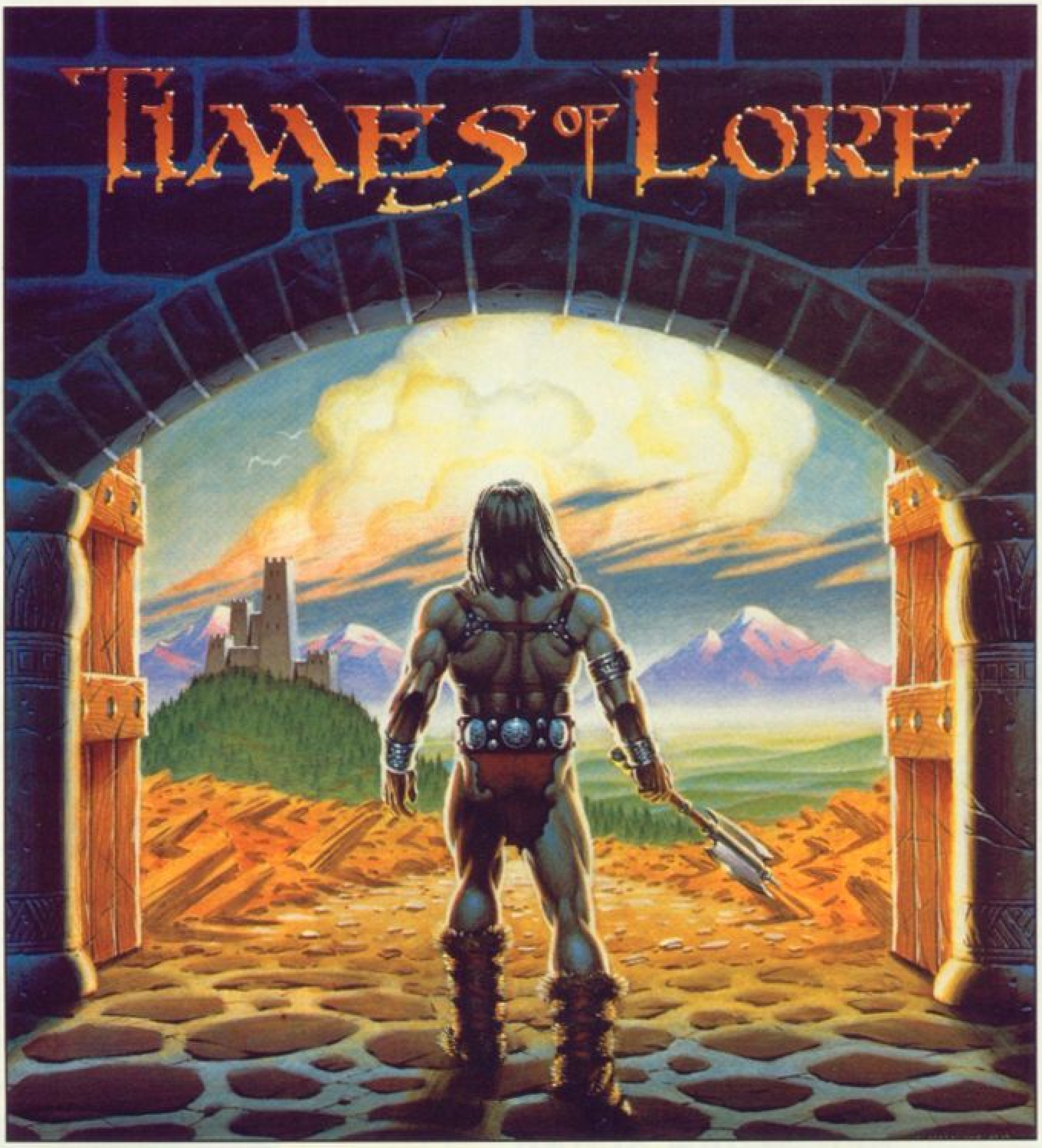
No wonder this man's smiling. He's just received an advance of $4 million for his latest book, and he doesn't even know what it's going to be about. His name's Tom Clancy and his book *Red Storm Rising* is the latest Microprose masterpiece. Could be we'll be seeing a Clancy game on the new Microprose console.

Meanwhile, *Red Storm Rising* is preparing for a pre-Christmas launch. The game closely follows the story-line of the book, in which the Russians spark off a war in order to gain valuable oil-fields following the destruction (by accident) of their own oil production facilities. Gameplay features sub-sim sequences and some pretty hairy weaponry as you strive to secure victory for NATO against the Russian bear. Politically a little dubious, perhaps, but stirring stuff and considerable strategic elements. Watch this space for the definitive review...





Makes yer sick, doesn't it? First off the mark with a software-driven hardware development is a US software house. But take heart! Many of the boys at Microprose are from the Old Country. Kevin Buckner, pictured here, is a true-blue British programmer and one of a number of UK ex-pats now working for Major Bill and the boys. Here he is in front of Abraham Lincoln, preparing to receive public adulation for his part in the development of future products, including - perchance - some of the new coin-op super-sims.



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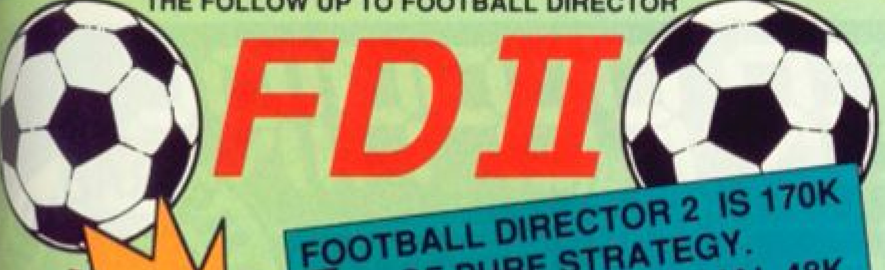
THE FOLLOW UP TO FOOTBALL DIRECTOR



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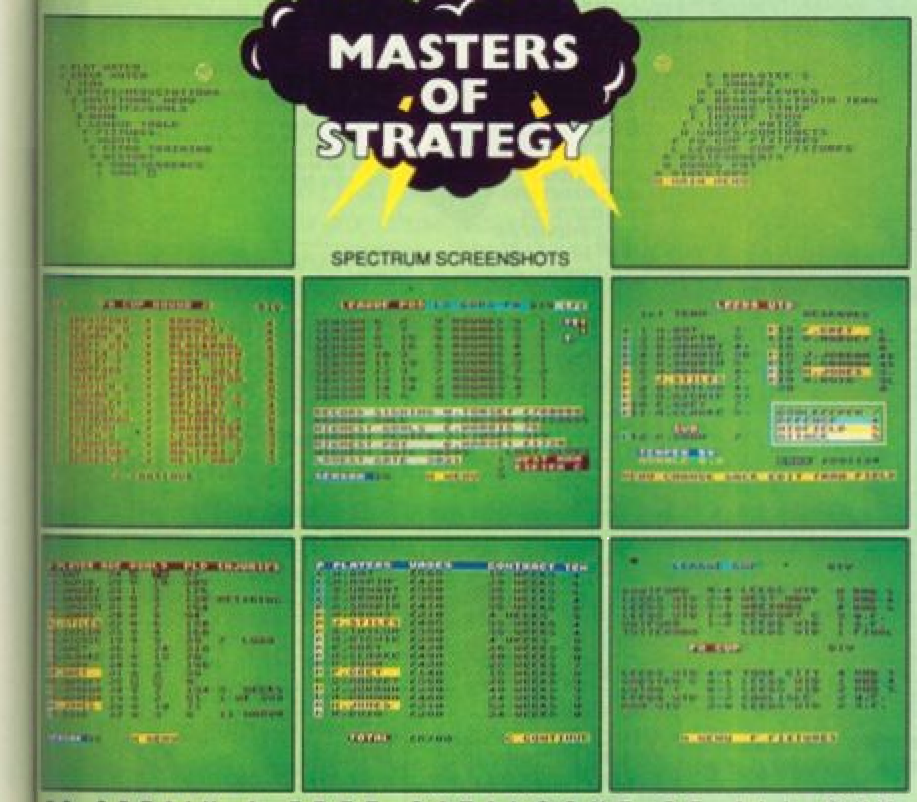

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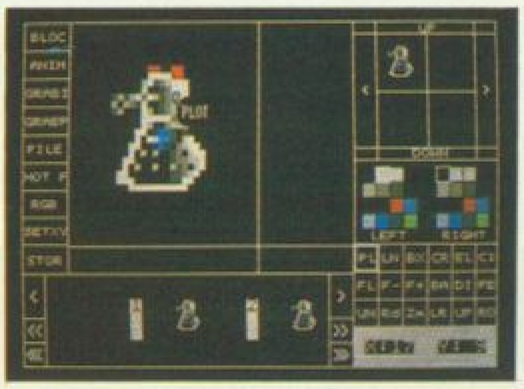
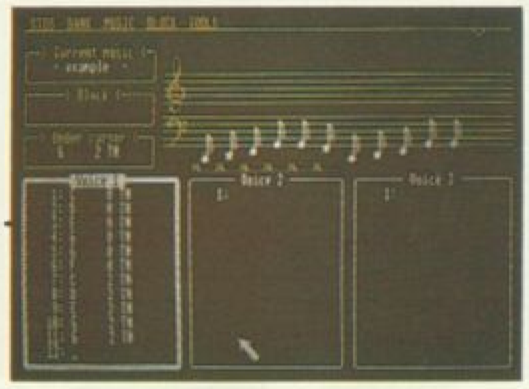
AND HERE'S ONE I MADE EARLIER...

In the good old days, you could write a game in Basic and sell it. Then came the great micro boom, and suddenly games were unmarketable unless they were 100% machine code. Now Mandarin Software have come up with *STOS*, a new ST Basic designed specifically for writing games with. Are things coming full circle? Andy Wilton investigates.



A cuddly dalek sprite being edited in STOS's sprite creator.



DIY Rob Hubbard? Well, not quite, but if you've got the talent STOS has got the tools.

The code-only game is not as universal as most people think. While Basic games for the Spectrum or C64 are (commercially) unknown, the extra power of the modern micro makes them a more practical proposition. As the authors of *STOS* are keen to point out, a game like *Tetris* (ACE-rated as high as 956) certainly doesn't need to be written in machine code. Meanwhile, games like FTL's *Oids* (ACE-rating 969) prove that the high-level language C is quite adequate for arcade fare. That's as may be, you say, but *Basic*?

If you're going to write games in Basic, you've got certain fundamental problems to overcome. First of all is *speed*. The whole reason why the '100% machine code' movement caught on was because of the vast speed increases code offered over the Basics of the early 8-bit boom years.

SPEED

The power boost ushered in by the ST and new, higher-speed PCs meant that Basic was fast enough for many game tasks. Things like high-score tables, option screens and game 'physics' (i.e. the rules by which objects interact and move) could all be handled in Basic, the theory went, while machine code sub-routines looked after time-critical tasks like screen handling and collision detection.

This approach had problems however, problems so big that most programmers shied away completely. For one thing, the Basics themselves caused difficulties. The bundled ST Basic was totally unsuitable for games, not least because of its heavy involvement with the hard-to-understand GEM operating system, while there was no PC Basic standard enough to use at all.

The only workable course on these machines, was to use a third-party Basic. So long as you chose a *compiled* Basic – that is, one that turned your Basic listing into a stand-alone machine code program – it didn't actually matter whether any of the people buying the game actually had the same version, or any Basic at all come to that. (Games written entirely in compiled Basic aren't unknown: Microdeal's ST arcade adventure *Slaygon* was produced this way.)

There still remained the difficulty of actually meshing the time-critical bits of machine code with the main Basic program. This is not typically a simple task: if you know enough code to write your own sprite and scrolling routines, you may very well be tempted to forget Basic at this point and code the whole thing. (See Psychology below).

Mandarin's *STOS* wriggles out of the above problems very neatly. It's not actually a compiled Basic so you'd have to include a copy of *STOS* with any game written under it, but because *STOS* can be protected (nobbled in other words) the game-buyers won't actually be able to use it for their own purposes. Integrating machine-code sub-routines isn't a problem either because – in theory at any rate – you don't need them. Even the time-critical bits can be written in *STOS* Basic.

The idea is simplicity itself. Creating game graphics is slow in a conventional Basic, simply because it was never intended as a games language. Normally you have to either plot points and draw lines using special purpose graphics commands (very slow), stick to PRINTable graphics characters (looks dreadful) or POKE direct to screen memory (complex and still quite slow).

Because *STOS* offers sprite and scrolling commands aimed very specifically at games writers, it doesn't suffer from these speed restrictions. In effect you have a set of machine code routines that you didn't have to write and, because they take the form of Basic commands, can very easily mesh with the main program.

COMPLEXITY

Speed isn't the only problem involved when you start using Basic for games. Things can get complicated too, prolonging the programming task and increasing the likelihood of mistakes – the precise problem most people hope to avoid when they turn to Basic.

For starters there's the data-handling to consider. While Basic arrays and DATA statements may be fine for game physics or sound-effect info, they're far from suitable when it comes to graphics. Storing sprite or background info as a

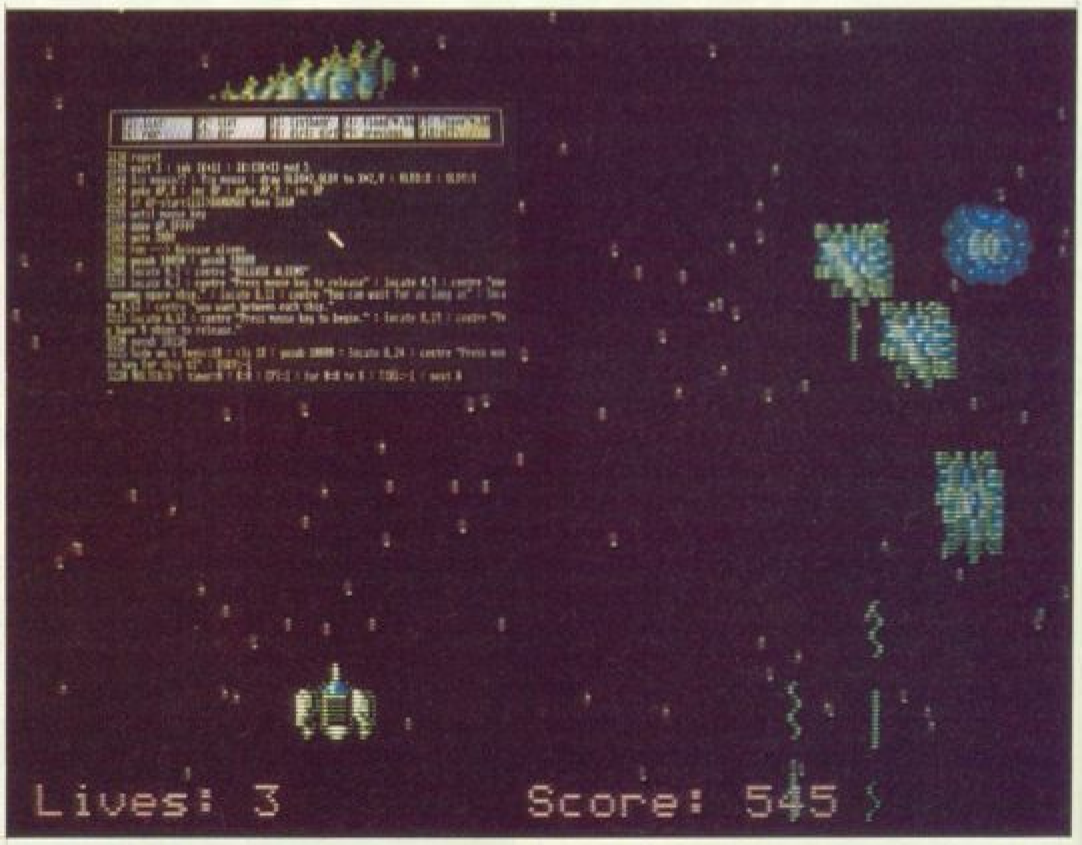
AMIGA ASPECT

Unlike the ST and PC cases, AmigaBasic is really quite well suited to games – or at any rate, about as well suited as Basic's going to get. Conventional graphics commands run at quite a healthy speed, while the 'bob' facilities available could be very useful in arcade style offerings. (A 'bob', for those in the dark, is a *blitter object* – a kind of free-form sprite handled by the Amiga's custom hardware.) AmigaBasic games probably wouldn't sell even at budget, but for the hobbyist they're a pretty attractive prospect. Above all, they let you avoid the labyrinthine complexity of the Amiga's oh-so-intrusive operating system!

series of numbers in DATA statements not only takes up acres of space but causes serious readability problems. Quite simply, the DATA statements don't look like anything at all, let alone the actual graphics they represent: working the numbers out by hand, especially on a bitplane machine like the ST, would try the patience of a saint. Make mistakes or delete lines accidentally and you may not realise till it's too late.

The traditional answer is to use some kind of sprite editor utility, and either load the results of this from disk when they're actually needed or dump them into the main program as DATA statements (a commonly available facility). The *STOS* answer on the other hand is to provide you with a bundled sprite editor usable directly from Basic, along with facilities to make the data automatically load and save alongside the program that's to use it. The system for doing this isn't explained too well in the bulging *STOS* manual, but it's powerful and a very good alternative to conventional problems.

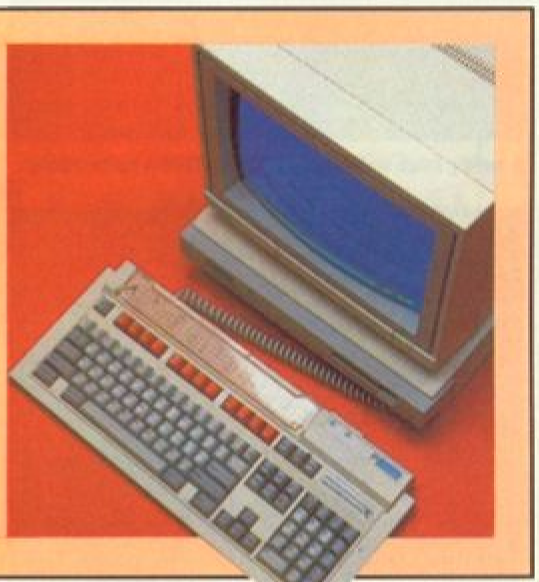
The other big complexity problem is just sheer program size. Basic games are, almost without exception, *huge*. Even with *STOS*'s structuring commands you'll end up with a vast lumbering giant of a listing if you try to write anything comparable to commercial games. ST users without printers need not apply!



Zoltar - one of the three demo games supplied with STOS. The best of the bunch, indeed. A rudimentary shoot-em-up, it does at least show what STOS can do. (Inset)Just a few of the many, many lines of Basic needed to create even a simple game like *Zoltar*.

ARCHIE ANGLE

The Acorn Archimedes really is a special case in all this, because commercial Archie games are, as often as not, written in Basic. The machine's dialect – Basic V – isn't particularly aimed at games creation, but the sheer blinding speed of it more than makes up for this. Benchmarks would suggest that Basic V on the Archie is at least comparable to machine code on fast 8-bit micros, in fact. Of course, shelling out £800 for a machine and getting 8-bit games performance may not represent the best value ever!



QUALITY

By definition, machine code is the fastest and most compact way of doing any computer task. When you use Basic – or any other high-level language for that matter – you are trading off quality against programming time. Where you're dealing with a simple idea like *Daleks*, *Asteroids* or *Tetris* the quality drop needn't be noticeable, but you'll never write *Virus* or *Carrier Command* in *STOS*. They wouldn't run fast enough!

You probably won't write *Driller* either, space limitations being what they are. Though *STOS* can load data from disk and uses strongish data compaction techniques, you're still limited to a single 360K disk for normal distribution purposes – and you've got a lot to fit on there!

Potentially the biggest *STOS* quality drawback is right in its heartland of scrolling shoot-em-ups: its collision detection, to be precise. In the main, *STOS* relies on testing *extents* – close-fitting rectangular boxes around sprites – to determine whether objects have collided. If the extents overlap, there's a collision; if they don't, there isn't.

This leaves the programmer with an unenviable choice. Does he (a) make all his sprites rectangular, (b) give them big extents or (c) give them small extents? Clearly (a) is going to look ugly, but (b) and (c) aren't much fun either. In case (b) you can get collisions even when objects aren't touching, and in case (c) you can fail to get collisions when they definitely are. The result is almost bound to be unsatisfactory, unless you discard the built-in detection and devise your own system.

PSYCHOLOGY

As far as professional acceptance goes, *STOS*'s chances in the UK full-price market are slim indeed. The reasons for this are by no means all practical ones, but have to do with attitudes.

Take professional programmers for starters. Hardened gamesmiths don't like high-level languages as a rule, and would *rather* program in code even where neither speed nor compactness is crucial. They expect to be in total control of their target machine, and don't even like dealing with operating systems where they can avoid doing so. A system like *STOS*, which gives them only a vague idea what's happening at all, is highly unlikely to appeal.

As far as software houses are concerned, *STOS* games would have a hard time of it. Utility-written software is unpopular with the big houses and, even with the flexibility that *STOS* offers, is likely to be viewed as technically limited. Their own preferences or prejudices aside, the houses will also (quite sensibly) be wary of publishing *STOS* games because of public reaction: *STOS* games are freely distributable, but they must carry a notice revealing their origin. That could well, in an industry that's so in love with technical perfection, put potential buyers off.

THE BOTTOM LINE

No two ways about it, *STOS* has a lot to offer the hobbyist who knows and likes Basic. It might also make a few people some money writing for the budget market, but for serious games authorship it has biggish drawbacks. The overriding impression it leaves is that there's an awful lot there for your money – it could keep you out of mischief for months! – but *STOS* is unlikely to make your fortune.

As for mainstream games on the whole, it remains doubtful that Basic will ever be a very useful language to work in. Jawx, the creators of *STOS*, may have written a *Breakout*-style game in a day using the system, but a competent programmer could probably manage much the same feat in machine code. What takes the time is producing the finely honed sort of product people will shell out £15 or £20 for, and if anything that's going to be harder rather than easier in any form of Basic. ●

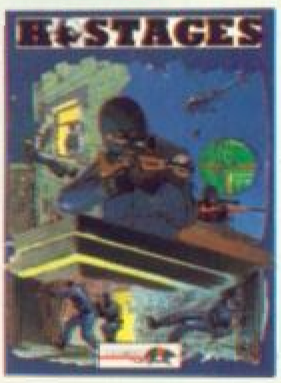
HOW MUCH AND WHEN?

STOS is currently available for the ST only at £29.95, though an Amiga version is a possibility some time in the New Year.

HOSTAGES

An urgent 'phone call. Terrorists have overrun an Embassy, taking hostages. As Head of the Terrorist Intervention Combat Team it's up to you to regain control. Under cover of darkness, place crack marksmen around the Embassy; then get your Paratroopers onto the roof ready to abseil down the building, entering the Embassy through the windows. Now comes the tricky bit.

Have you got what it takes to win in a life or death crisis? Can you effectively co-ordinate six Commandos? Can you second-guess a desperate group of terrorists and get the hostages, and your troops, safely out of the Embassy? There's only one way to find out.



INFOGRAMES

THE DEVAST

This month Andy Smith leaves a trail of devastation on his way to the chops and ends up in court. A quick game of footie, then it's off for a stint as a vigilante duck.

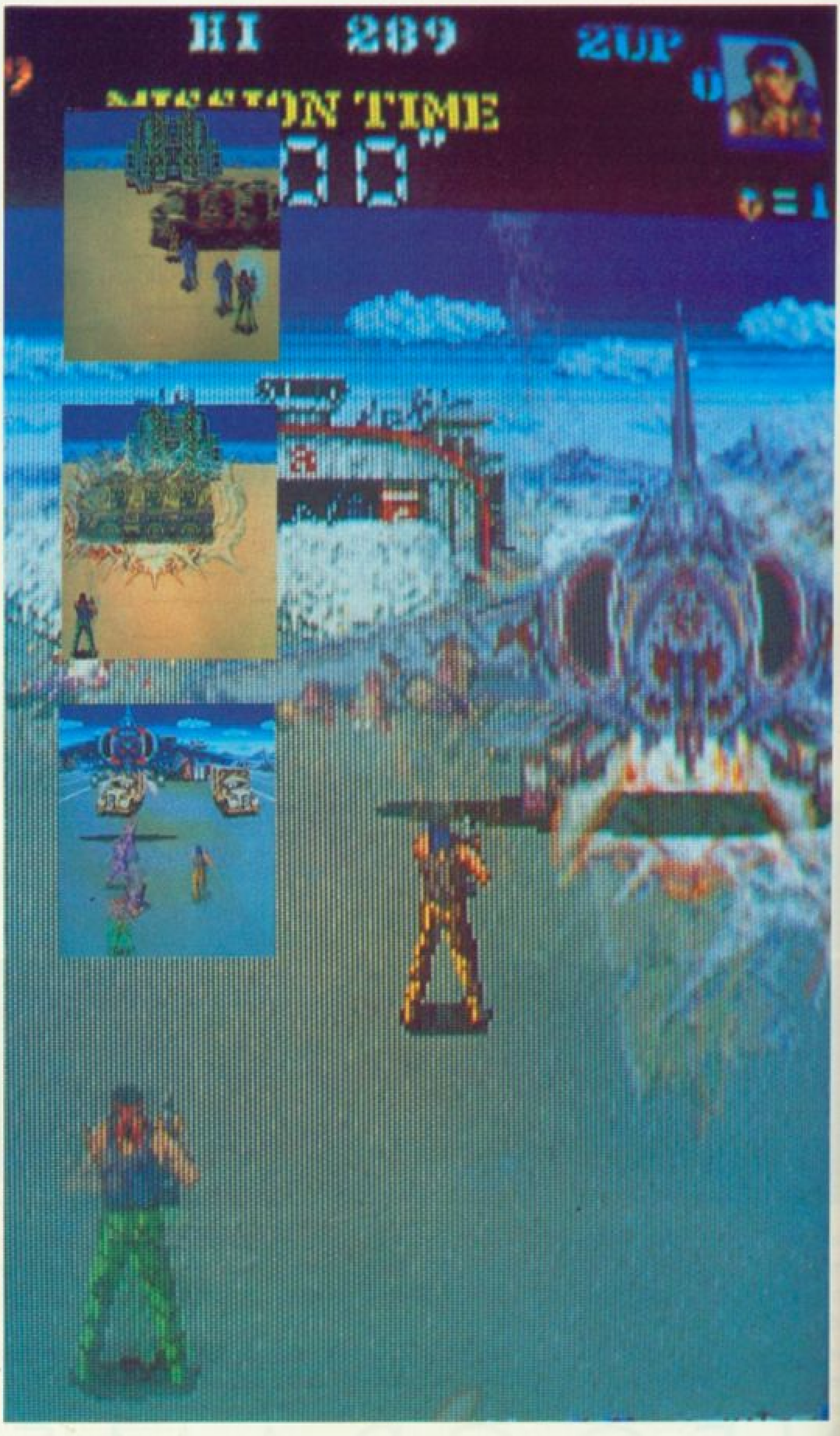
DEVASTATORS

Konami 30p

As the title suggests, this game's full of extreme violence. It's an *Ikari warriors/Rambo* style game, but your character's viewed from behind instead of above. You've got seven missions to complete, all of which involve infiltrating enemy bases and wiping out the enemy guards that come rushing towards you from background to foreground.

You start the game with a front-firing gun and a fistful of grenades, but by shooting the enemy soldiers that are dressed in yellow, you can pick up extra weapons like rocket launchers (which come in handy for destroying towers that house enemy machine gunners) and fire bombs. You'll need all the extra weapons you can get as you progress in the game, because helicopters, planes and tanks all make an appearance and your weedy grenades aren't up to the job of destroying them.

The graphics are nothing outstanding, but the perspective's good (it takes a while to get used to the range of your gun, though) and it's fun to play. *Devastators* has plenty of action, but it's not as manic – or as satisfying to play – as, say, *Operation Wolf*.

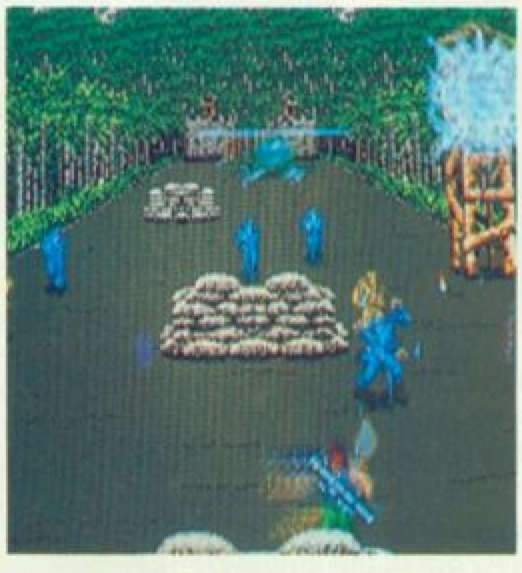


(Inset top) Launching a rocket attack on a personnel carrier. Shoot that yellow soldier and you'll get another rocket.

(Inset middle) Bingo! Say bye bye fellas!

(Inset bottom) In two player mode. That plane's targeted and ready to be destroyed.

(Right) It's history!



Stage three. You've just destroyed that machine gun nest and now all you've got to do is waste those soldiers.

TATION GAME

EXTENDED PLAY

■ Brief glimpses of some of the latest games

CENTER COURT

Sega 50p

This viewed-from-above tennis game can accommodate up to four players and gives you the chance to play either men's or women's singles or doubles. You've got three basic shots to use, including slice and lob. The overhead view makes it tricky to judge when to make your shot, and unless you're a real tennis fan you're probably better off finding something a little more exciting.

POWER DRIFT

Sega £1.00

This one really is exciting. You sit in a large cabinet (and fasten yourself in with the safety belt) and prepare for a thrilling high speed race in a futuristic car cum Go-Kart. *Power Drift* combines all that was best in *Out-Run* and *Buggy Boy* and comes up with a terrific driving game that looks set to be a winner.

HEAVY BARREL

Data East 30p

This one or two player *Time-Soldier* like shoot em up gives you all the usual trimmings – extra weapons, huge nasties etc etc. Good stuff, but it's not outstanding.

KICK OFF

Jaleco 30p

Football games are ever popular, and in this one you control a full-strength international team. *Kick Off* reverts to the old sideways on view as opposed to the current trend of overhead views for football games. The most outstanding feature of the game is the football that looks about 3 foot in diameter!

FORMATION ARMED

Fillmore/Nichibutsu 30p

This vertically scrolling shoot-em-up has some great looking backgrounds and *Salamander*-ish tentacles. You're flying a spaceship, Brian, and you can pick up loads of extra weapons like drones etc. A good, un-original, blast.

DYNAMITE DUX

Sega 30p

This one has got to be in the running for the cutesy-wutesy game of the year title. You control a Woody Woodpecker-like character who's wandering around the streets fending off attacks from a host of cartoon-style adversaries. To despatch the baddies (which include dog and mousse heads) you simply punch them, they then fly across the screen with their tongues hanging out.

The graphics are all very good, and if you thought Bub and Bob were cute – you ain't seen nothing yet. The Hi-Score table gives you an idea of just how sickly sweet this game is – most games say things like 'Today's Best Warriors' or 'The Hall of Heroes', *Dynamite Dux*'s high score table calls them 'Best Friends'. Yeuch!

SUPER RANGER

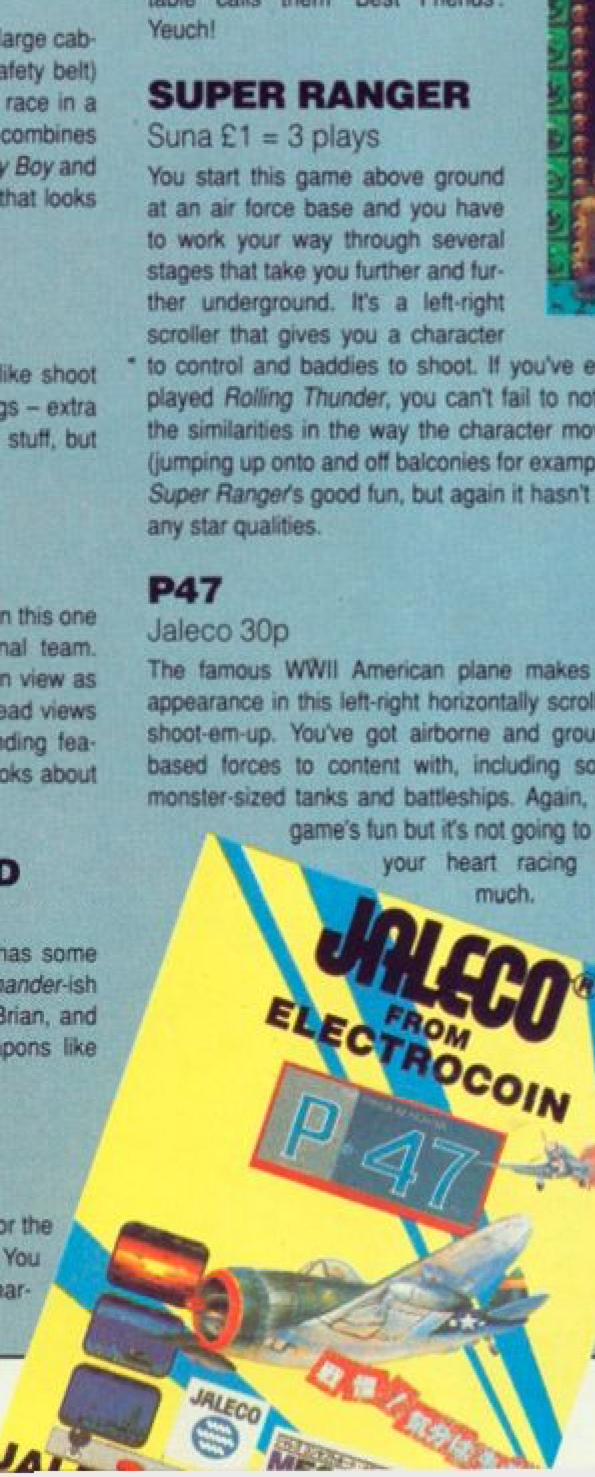
Suna £1 = 3 plays

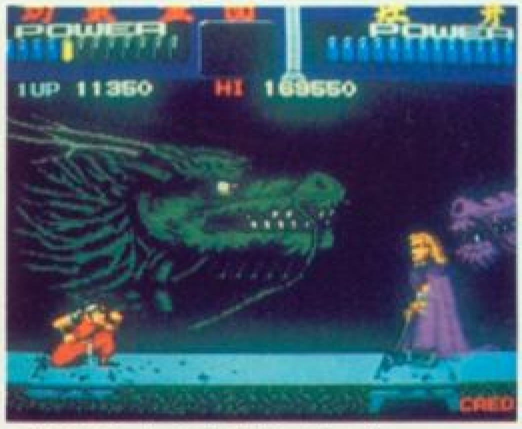
You start this game above ground at an air force base and you have to work your way through several stages that take you further and further underground. It's a left-right scroller that gives you a character to control and baddies to shoot. If you've ever played *Rolling Thunder*, you can't fail to notice the similarities in the way the character moves (jumping up onto and off balconies for example). *Super Ranger*'s good fun, but again it hasn't got any star qualities.

P47

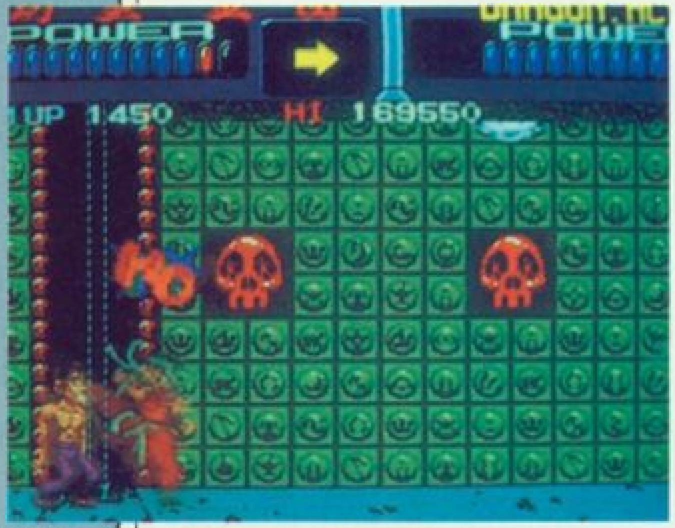
Jaleco 30p

The famous WWII American plane makes an appearance in this left-right horizontally scrolling shoot-em-up. You've got airborne and ground-based forces to content with, including some monster-sized tanks and battleships. Again, the game's fun but it's not going to get your heart racing too much.





On the first level and in the thick of the action.



You're just about to go into battle with the first of the end-of-level guardians.

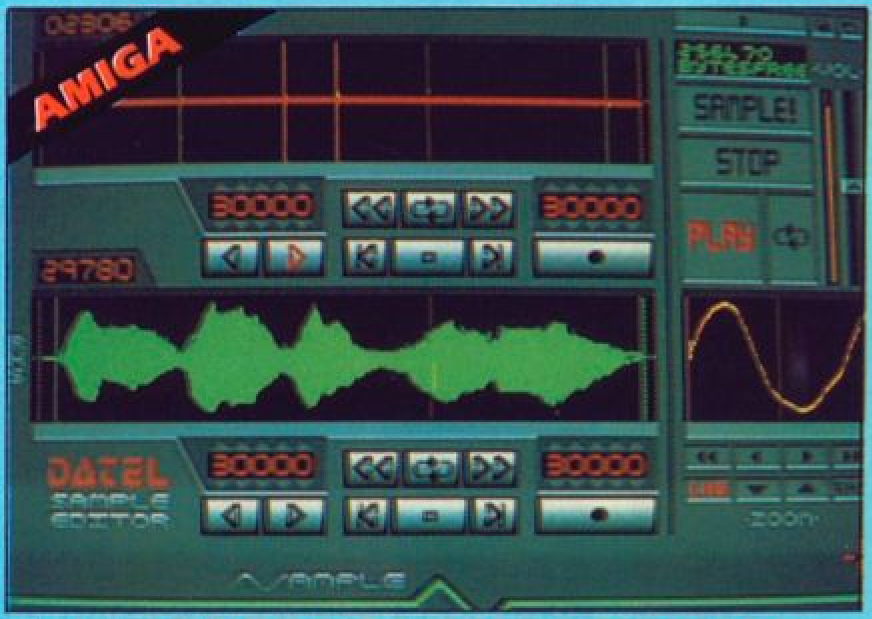
● KURI KINTON

TAITO 30p

The 'let's revamp an old favourite' trend continues in the arcades. Remember the old *Karate Champ* game in which you controlled an on-screen Karate expert who had to kick and chop his way passed hundreds of temple guards? Well *Kuri Kinton*'s very similar. You're breaking into an underground base and have to despatch loads of enemy guards, by kicking or punching them (carry out a move successfully and a Batman style POW! or YA! bubble appears). *Kuri Kinton*'s a side-on viewed scroller, with the backgrounds changing as you progress further down through the base. The guards also become harder to kill as you get further into the game, and end-of-level guardians turn out to be tough martial arts experts, who can polish you off very quickly indeed if you're not careful. You only get one life in the game and your strength is shown at the top of the screen in the form of a meter that goes from full to empty as you take hits.

Kuri Kinton's a dull game, the graphics aren't anything special and the game style's very old hat by today's standards.●

DATEL ELECTRONICS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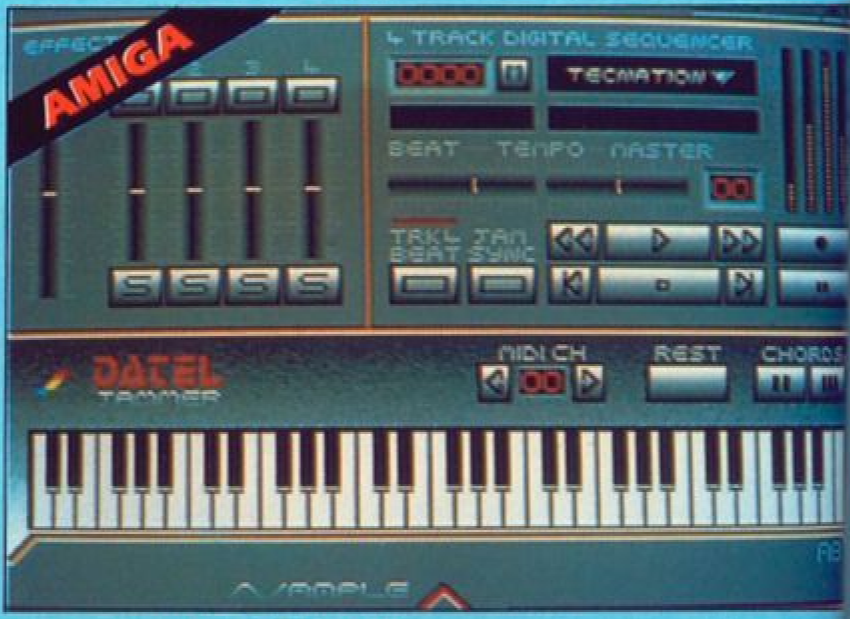
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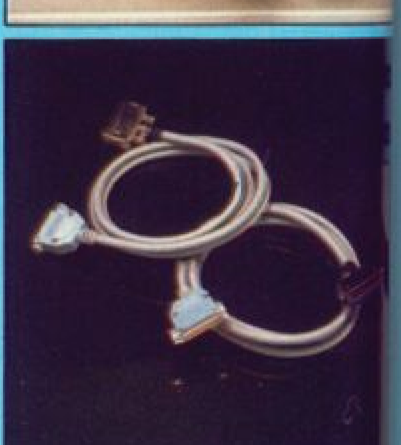

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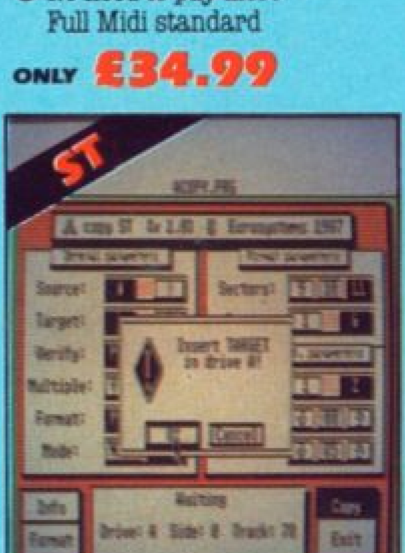
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Insert TARGET in drive A!
Info
Format
Waiting
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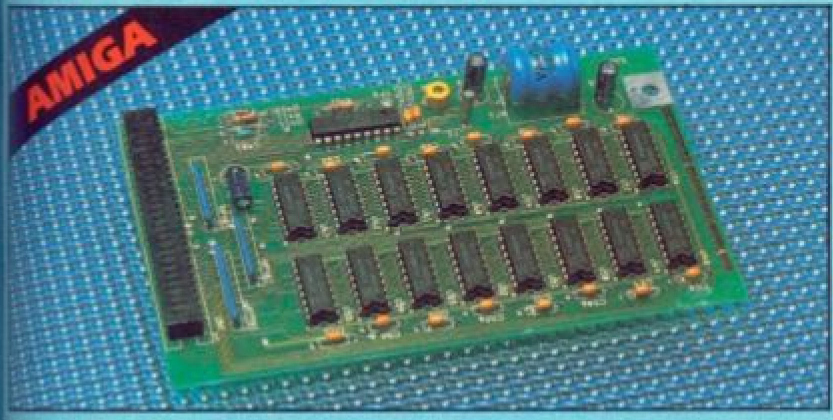

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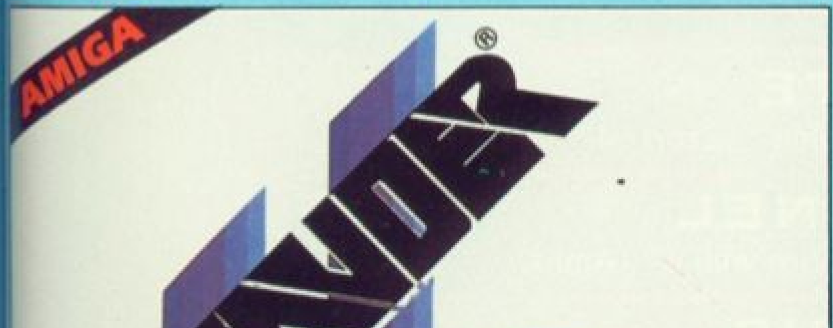

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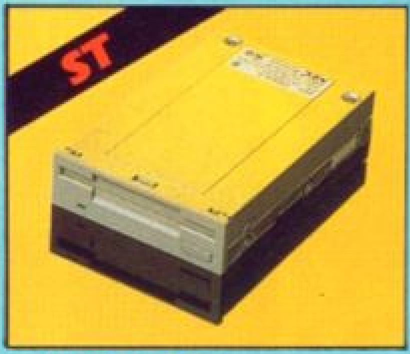

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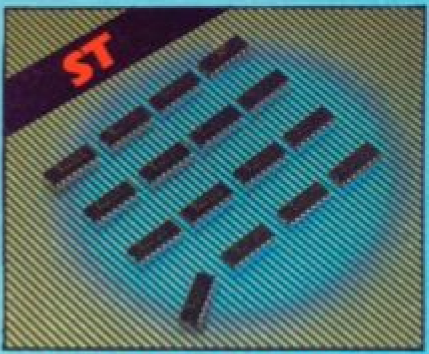

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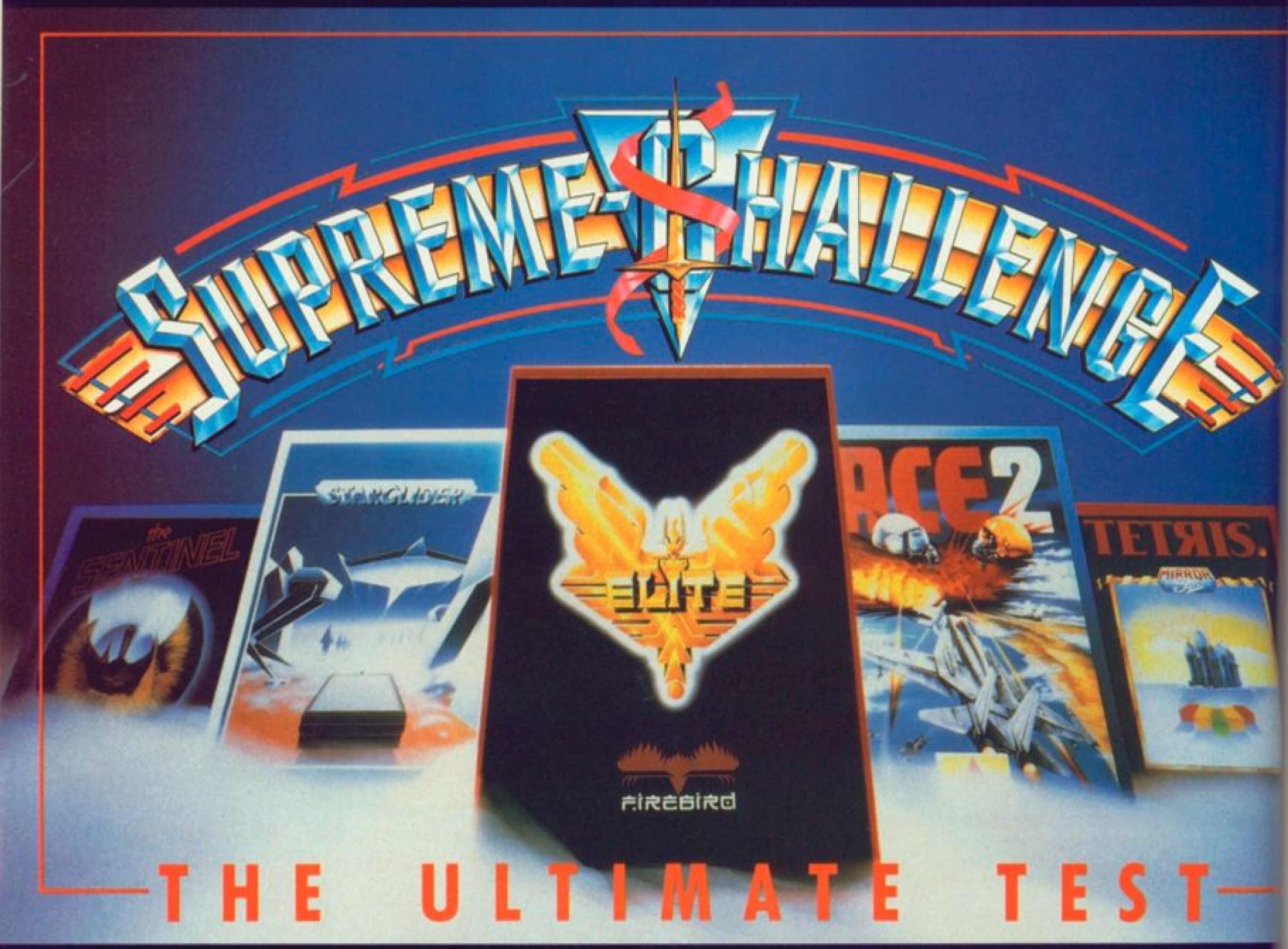
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THE NAME BEHIND THE GREAT GAMES

INGRID'S BACK

...and are LEVEL 9 back on top?

INGRID'S Back is the latest in Level 9's series of attempts to retain (some would say 'get back') their position as the major British adventure publisher. Readers of this column will know that, in the Pilg's opinion, the company have been struggling ever since they launched *Knight Orc* – the first program using their new system and, alas, something of a disappointment. *Gnome Ranger* followed, but this too received a rather luke-warm reception, though undoubtedly better than its predecessor.

So, in the light of releases such as *Corruption* and (from Infocom) *Lurking Horror*, the Level 9 reputation has been sadly slipping. Can *Ingrid's Back* and *Lancelot* fill the bill and put them back in the limelight?

As far as *Ingrid's Back* is concerned, the answer is a tentative yes. It's not the most exciting game on earth, but it does make one very important point: Level 9 are beginning to get to grips with the use of characters in their games and to program them very effectively.

The plot goes like this. Young Ingrid has returned home, to find that her fellow gnomes are (a) anxious to avoid her whenever possible and (b) blithely ignorant of that fact that they are all about to be evicted by absentee landlord Jasper Quickbuck.

Ingrid decides to take action and does so in three separate loads. The first game sees her attempting to get signatures for her petition against the eviction. The second sees a domestic battleground scenario as the gnomes attempt to defend their homes against the invading developers. In the final game, Ingrid attempts to turn the tables on Quickbuck and infiltrate his manor stronghold.

920
ACE RATED

PRETTY PRETTY

The first thing you notice about this game are the graphics. They may not be as technically accomplished as the Magnetic Scrolls screens, but they are leagues ahead of earlier Level 9 titles and are bursting with warmth. They add a great deal to enjoyment of the game and, because of limited 'multi-tasking', do not hold up the action too much while they're loading.

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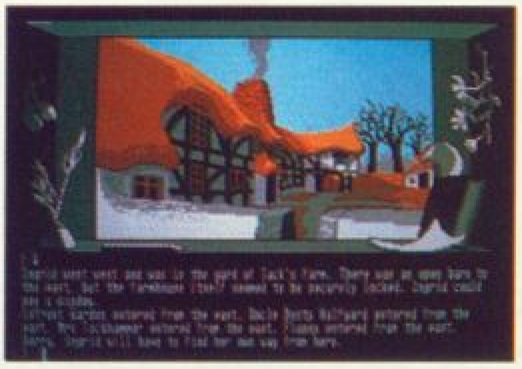
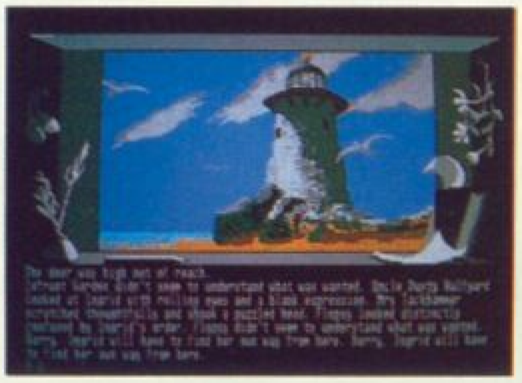




The next thing you notice is the implementation of the characters. In *Knight Orc*, there were people everywhere, causing general confusion and seriously detracting from the enjoyment of the game. In *Gnome Ranger*, things were better, but the characters – although powerfully implemented – were still rather dull. *Ingrid's Back* puts all that to rights.

First, in this game the characters are well depicted and full of...well...character. Secondly, they have excellent programmed behaviour patterns that can easily be observed and add to the atmosphere of the game without being a burden on the player. Finally, where they are involved in puzzles, the solutions are logical and satisfying.

The chief NPC (non-player character) is your dog Flopsy – a very useful hound who can carry out some surprisingly complex chains of command. However, if you bother to read the scenario that comes with the game you'll also get a lot of enjoyment out of the other gnomes, most of whom have convincing personalities of their own. In this respect the game has moved away from the rather vacuous 'tweeness' of *Gnome Ranger* and the meaningless goings-on in *Knight Orc*.

There's no doubt that the Pilg is just a teensy-wheensy bit browned off with gnomes, orcs, and the like. That said, this game succeeds better than most in putting them in a contemporary and engaging scenario. I can't wait to get my hands on *Lancelot*...

PILGRIM

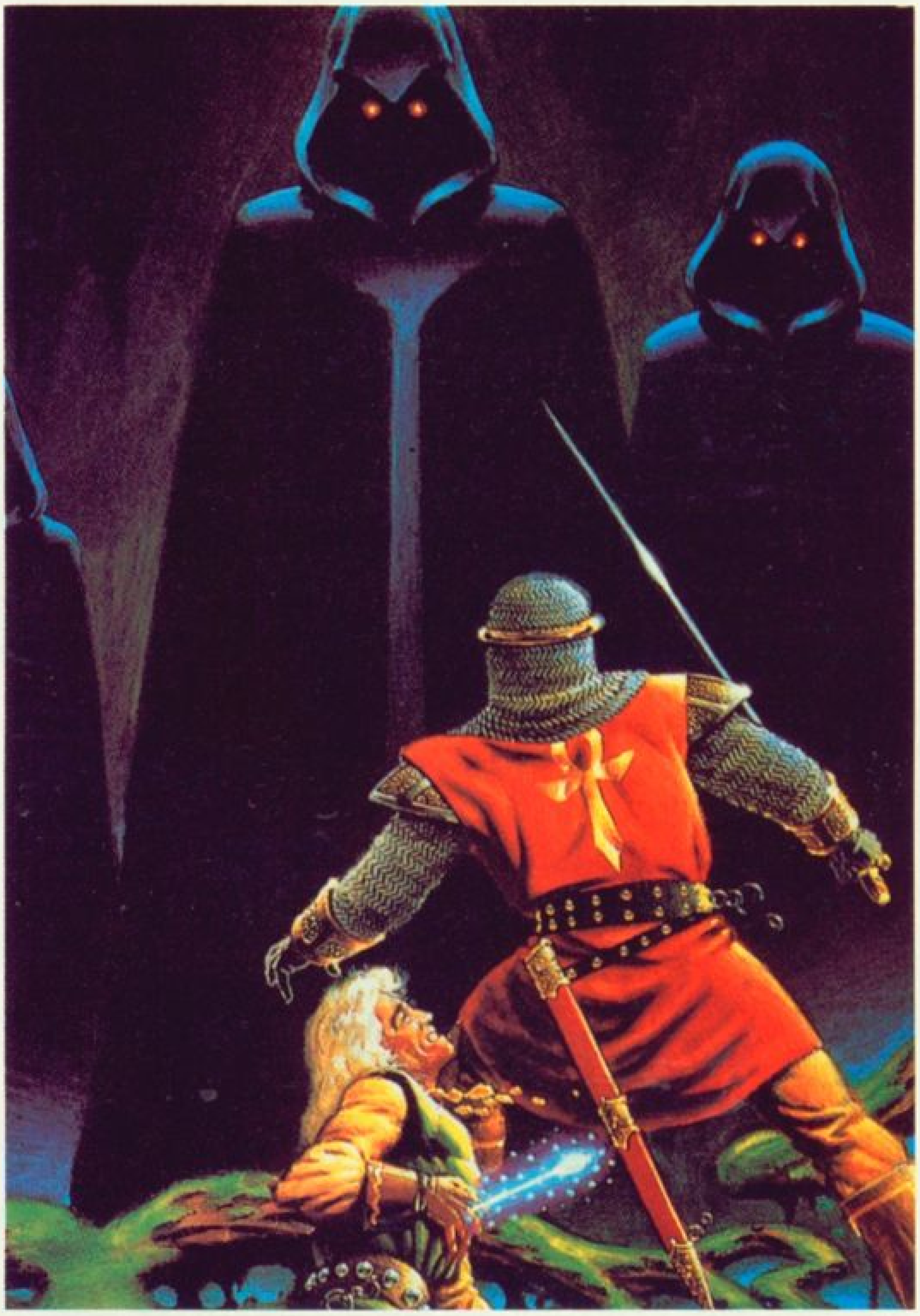
ADVANCED COMPUTER ENTERTAINMENT

LANDSCAPE	93	SYSTEM	92
CHALLENGE	91	ENCOUNTERS	95

ACE RATING 920

THE PILG'S GUIDE TO ULTIMA V

If you haven't played Ultima, check out this guide for an idea of what you're missing. If you have played it, check out this guide and stay alive!



GETTING THE PICTURE

There are three main areas of the game: the land of Britannia, the Underworld, and the Dungeons. Tackle Britannia first, then the Underworld, and put off exploring the Dungeons until you're sure your characters won't let you down.

. Although the plot is described in the accompanying documentation, it may take you some time to discover what you're actual objectives are. Concentrate on building up your characters and you'll find the quests are revealed to you by (a) meditation at the shrines and (b) other characters. In the latter case, characters won't actually ask you to do anything, but they will give you information which is likely to spur you into action!

GETTING STARTED

Your main objective at the beginning of the game is to build up your party and equip it properly. Create a single character from the main menu and then enter the game, where you will find yourself in the company of Shamino and Iolo. Do your best to keep both alive until you find Lord British's castle, which is to the East of Iolo's hut where you enter the game.

If your party die, you get resurrected but at a heavy cost in hit points and character levels. Don't worry too much about being killed off while you're still exploring the game, but at a later stage make a point of building up a party from scratch without having to be resurrected at any time.

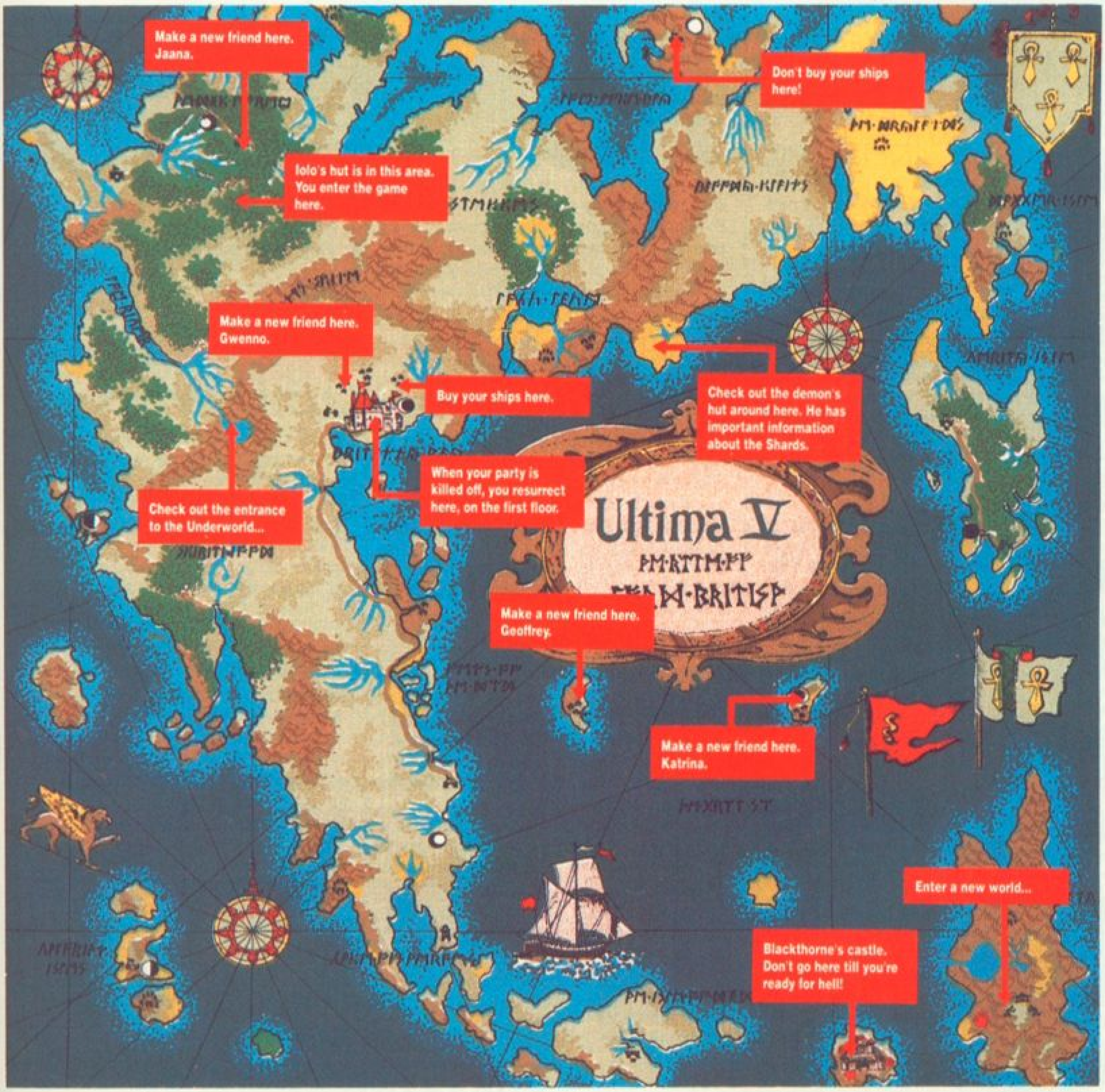
Ultima is a rather annoying game in the way it SAVES the state of play. You can only keep one game-position on each copy of your Britannia disks and SAVEing overwrites any previous save on that disk. For a number of complicated reasons related to gameplay - which you will inevitably discover – this can cause problems ranging from inconvenience

TROLL BASHING

One of the most useful skills to practise, since it's a quick way of getting lots of cash and (saleable) weapons. Stand your party on a bridge and hold down the space-bar. Soon the trolls will appear. Give them a beating, take their treasure, then hole up beside the bridge to restore your hit points.

At later stages of the game, when your characters are level 3 and above, this is an almost fool-proof way of getting vital resources. However at early stages you should be careful not to underestimate trolls.

Once you're stocked up with weapons, equip your characters with any particularly useful ones (especially armour) and carry the rest of the booty off to the nearest armourer to sell it. You can easily run up around 1000gp this way with a little perseverance and a lot of trolls!


Make a new friend here. Jaana.
Don't buy your ships here!
Iolo's hut is in this area. You enter the game here.
Make a new friend here. Gwenno.
Buy your ships here.
Check out the demon's hut around here. He has important information about the Shards.
When your party is killed off, you resurrect here, on the first floor.
Check out the entrance to the Underworld...
Ultima V
Make a new friend here. Geoffrey.
Make a new friend here. Katrina.
Enter a new world...
Blackthorne's castle. Don't go here till you're ready for hell!

to the loss of your entire party. For example, you can SAVE your position on an island which you have reached by sea, only to find that just out of sight, while you were saving, there were dozens of pirate ships about to sink your vessel. Net result – a lot of inconvenience and possible stranding.

The only way to get round this is to make multiple back-ups and to be absolutely safe the following regime is recommended: Make three copies of your Britannia disk. Keep one for future reference and use the other two for back-ups by saving your position regularly in the following fashion:

1. Play with Back-up disk 1 in the drive and back up frequently by typing Q and then Y to save onto back-up disk 1.
2. Back-up every hour as in 1 but do the process twice – saving once onto Back-up disk 1 and once onto Back-up disk 2 (replacing BUD 1 in the drive when you've done it) – assuming, of course, that your status has not deteriorated since you last saved to disk 2. If it has, reload the game and boot up from disk 2, insert disk 1, and hope you have better luck!

For more information on building your party and gathering cash and weapons, see elsewhere on these pages.

TRAVEL

ON FOOT

Simple, but takes longer. Time can be a crucial factor if you're short of food as this essential resource is used on a daily basis. Starvation is one of the quickest and most depressing ways of losing an entire party. It's also avoidable.

ON HORSEBACK

There's a stable in Lord British's castle in the South-East wing at ground level. Just stand over a horse and hit B. You can gallop around indoors, you know! Note that horses tend to wander off if left unattended and may well disappear even if left by one of the tethering

POWER PALS

Check out Yew to recruit Jaana; New Magincia (by moongate) to recruit Katrina, a powerful level 5 fighter; and Buccaneers Den for Geoffrey. Gwenno can be found in Britain, chez Iolo's Bows.

A useful line-up after a few sessions of play would be your own Avatar character in the lead, followed by Katrina, Iolo, Gwenno, Geoffrey, and Jaana. Pop Shamino in the Inn in Britain till you need him.

posts found near the entrance to townes etc. You can try talking to horses – you never know...

IN A SKIFF

There are a number of important locations that can only be reached by crossing water. A skiff is a surprisingly useful asset and very cheap if you buy one in East Brittany. Other sources (e.g. Captain Blyth at Minoc) are more expensive. Expect to pay around 190gp.

VIA MOONGATE

Essential for reaching a number of locations without the hazards of overseas travel, and for quickly moving from place to place when you're in need of magical ingredients or food. The moongates are marked on the map supplied. They appear after dark and can be easily located by the pool of light they cast around themselves. Simply move over one when it appears.

BY SHIP

Expensive and hazardous, but essential for reaching Blackthorne's castle and other important locations. Make sure your party is VERY well provisioned with spells (already mixed and including lots of AN NOX's to combat the effects of squid attacks) as well as long-range weapons – sea- serpents and the like tend to hang back out of striking distance, peppering you with fireballs. Watch out for pirates! Expect to pay around 1000gp in East Britanny for your vessel, and much more elsewhere.

BY MAGIC

Casting IN POR is an occasional useful manoeuvre to get you over obstacles, providing there is somewhere nice to land!

HOLING UP

Hole up whenever your characters are weak" In addition to the benefits of sleep, there's also the chance that the Lord British apparition may appear, restoring your hit points completely and even promoting you a level if you deserve it. Don't hole up next to water if possible.

INSIDE TOWNES

When you're exploring inside townes and buildings, here are some things to look out for:

Secret doors: these are indicated by a single illuminated pixel showing in the cracks between bricks in the wall. S-earch in the required direction. They are usually locked.

Fireplaces: you get burnt if you move onto one of these, but sometimes it is very well worth it. Secret passages, stores of treasure, and other items may sometimes be found on the other side.

Windows: always look through these to see what's outside. In some cases, you may spot something (e.g. a hollow tree outside the village walls) which you wouldn't see otherwise. This could be important. In fact, one of the most useful weapons in the game (a magic axe) is found by this method.

Trees: search them, especially the hollow ones.

Beds: search them not once but twice – once at each end. If someone's asleep in bed, you can find out what sort of character they are by L-ooking at them.

Trapdoors: the first of these you're likely to find is in Yew. Fall through it, but make sure you have some keys with you first. It could lead to finding a friend.

As a general policy, always buy what you can afford from apothecaries and restaurants. Food and magical ingredients are vital to success and you simply can't have enough of them. If you spend all your money, go out troll bashing (see box) to replenish your resources.

TAKING CARE OF YOUR CHARACTERS

First-level characters (up to 30 hit points) are very vulnerable so always put them at the back of the party. After playing the game a few times, however, you should be able to build a party consisting entirely of Level 3 characters or above (see box).

Weak characters can be perked up using yellow potions but these don't always restore many hit points and are in any case hard to find. Best to keep them and the MANI spell for use in emergency during battle. For a small fee (around 29gp) you can restore a character to full strength in Britain by booking him/her into the inn and then immediately taking him/her out again. Neat, eh?

When single characters die, you can resurrect them by paying (expensive – 250gp plus) or by using a RESURRECT scroll (identified by the runic characters IMC). Regeneration rings will actually bring a character back to life after a short period.

If the unthinkable happens and your party is entirely wiped out, then the party will be resurrected in Lord British's castle. You'll note that the ratings of the characters have been reduced along with their hit points. This is done according to a character's karma rating, related to previous behaviour during the game – so make sure you do lots of good deeds! The higher your karma, the less you'll have lopped off your ratings.

By and large,however, death for two or more characters should be treated as an insuperable object – reload from your last position and start off again.

MAGIC

There are four simple spells that you really should make sure you have in abundance. These are AN NOX (to cure poisoning – a frequent and otherwise rapidly fatal occurrence); MANI for boosting hit points when in trouble; AN SANCT for defusing traps in chests left behind by vanquished opponents; and AN XEN CORP. The latter is a useful last resort when attacked by dozens of skeletons, which can be rather hard for low-level characters to defeat otherwise.

Make sure you don't waste a spell by getting a non-spell caster to cast it! If you've got a fighter selected as the active character it's all too easy to make this mistake.

COMBAT

When you start off, the most useful line-up is to equip your rear-guard with slings, which you then use to pepper the enemy until their in range of your vanguard hand-to-hand fighters. Always make the most efficient possible use of the weaponry you have by consulting the reference card and distributing arms efficiently.

POTIONS

Here are some quick potion points:

YELLOW – restores hit points by a variable amount;

PURPLE – during combat has a rather bestial effect!

BLACK – during combat, renders the user invisible;

RED – cures poisoning.

At later stages of the game, concentrate on ensuring that weight distribution ensures maximum weapon take-up amongst characters. A morning star and a short-sword make a good combination for a strong character. Equip your rearguard with crossbows and save the slings for emergencies when you run out of quarrels (crossbow bolts).

Trolls are a good source of quarrels and arrows which are otherwise rather difficult to obtain.

Make sure that bludgeons are given to the stronger characters, who will make best use of them. It's worth paying for magic weapons – they really do make a difference – especially magic axes, which always return to the thrower. Spiked shields and helms are useful in combining defensive and offensive capabilities.

Rings should always be used for combat – they make a big difference but, alas, disappear after a while.

Finally, don't be ashamed of running away if you have to – especially in the Underworld where the opposition comes thick and fast. If you run away from an encounter, the opposition disappears.

SHADOWLORDS

If a tone sounds on entering a towne/village, accompanied by a message relating to despair, hatred, or cowardice, then there's a nice, palsy-walsy Shadowlord somewhere to your North, just waiting to destroy your entire party.

Shadowlords sit there and do nothing unless you get too close, then they close in rapidly. Once in combat, your party is more or less doomed. As a point of interest, you can destroy Shadowlords using conventional weapons, but they simply rematerialise later. The secret of getting rid of them is held by the Shards – but you've got to find them first! Characters in the game will help you here.

Don't enter a towne under the influence of hatred – the occupants will knock hit-points off your characters at every opportunity.

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SOUNDWARS

Mark Jenkins checks out three new *affordable* sound machines...the Kawai K1M (£395), Cheetah MS6 (£299) and Roland D-110 (£550)

Synth modules are getting cheaper, smaller and better all the time. Now all you have to do is decide whether you prefer analog, FM or LA synthesis, whether you want built-in drum sounds, whether you need multiple output, whether built-in reverb is vital for you, and so on and son...

In order to settle some of these questions, we've lined up three of the most recent affordable MIDI synth modules, and we've taken a look at them feature-for-feature. The features they have in common: all three are multi-timbral, progammable synth modules, all in need of an external keyboard, micro or sequencer to bring them to life.

SYNTHESIS

Cheetah's MS6 is the most 'traditional' of the three synths, although it's the most recently released. It's an analog unit based on the same Curtis Electro-Music chips used in the Propet 5 and other classic keyboards, so you can guess what it sounds like – twangy, bright, smooth or fizzy as desired. An 'oscillator sync' feature lets you create metallic harmonic sweeps, and the Cheetah's specialities are smooth string chords, mega-huge bass notes, cutting melody lines or fast brass stabs.

Roland's D-110 is the professional version of the MT32 module and shares its method of LA (Linear Arithmetic) synthesis; short samples create the start of each sound (the chiff of breath on the start of a flute or the rasp of a cello) and a relatively simple synth section fools the human ear into thinking it's hearing a lot more of the same. Filters, built-in reverb, ring modulation and envelopes allow great versatility, so the D-110 can sound like a sampler, analog synth or digital synth with equal ease.

Kawai's K1 takes the LA system and develops it to offer 256 sound samples, harmonically created synth sounds and more layering possibilities, but doesn't offer the familiar filters. However, of the three, it offers the most impressive presets – huge wodges of sound with names like 'Two Moon Sky' and 'Terminator' which are very difficult to argue with.

PERFORMANCE

The Cheetah is six-note multitimbral, with each voice independently assignable in an area of performance programs. You can assign one voice to a bass sound responding only to the bottom octave of a keyboard, three voices to a string sound responding to the next two octaves; one voice to a lead line responding to the next two octaves, and the last voice to a silly sound effect responding only to the top note. Store the lot away in a performance memory together with volumes and MIDI channels and recall the lot at the press of the button.

Kawai's K1M – small box, big sounds.

The D-110's performance setup is rather flexible – it has 32 'partials' which combine to create sounds, but sounds using ony one or two partials can be rather thin and most of the factory sounds use four. Potentially you have 32-note polyphony, but in practice you'll have eight to sixteen notes available; assignment is floating, although you can use Partial Reserve to make sure a certain part of your music always has enough partials available to sound properly. Again, every MIDI channel, sound and volume for up to eight 'Parts' can go into a performance memory for instant recall; the D-110 is the only one of the three to have multiple audio outputs, and you can assign a voice to an output as well.

On the K-1 there's a similar number of voices available and no multiple outputs, but you can assign voices to diffent stereo pan positions and again write a whole 'performance memory' with split points, layers and so on for up to eight voices or more.

SOUND EDITING

All three units can be edited without external help; the Kawai's complement of sound samples and envelopes (no filters, remember?) is fairly straightforward to edit using the top panel joystick (which doubles as a mix control for up to four elements per sound) although the Soundbits K1 editor for the ST does speed things up and offers loads of new sounds as well. The Cheetah's dead easy to edit using two pairs of buttons to select parameters such as filter cutoff, attack time and so on, and to alter their value.

The D-110 is basically supplied with loads and loads of orchestral sounds – pianos, organs, winds, brass, reeds, and so on. The synthy noise side is poor but there are loads and loads of variations on the string, brass and synth twang theme: the Kawai's sounds are in many cases TOO powerful (you don't want to create a whole film soundtrack with one finger all the time, but it's nice to able to do so...) although basics like guitars, strings and harpsichords are all there.

GOODIES

Each synth has some unique features denied to all the others. On the D-110 there's a huge kit of sampled drum sounds which makes up a ninth rhythm Part ('Part R') when you're composing with a sequencer. Many professional musicians have abandoned using drum machines now, and for very good reasons; if you treat your drums as all part of the

Roland D-110 MULTI TIMBRAL SOUND MODULE
PHONES
VOLUME
MEMORY CARD
EXIT
PATCH
TIMBRE
WRITE/COPY
EDIT
PART
SYSTEM
PARAMETER GROUP
BANK
VALUE NUMBER
ENTER
MULTI TIMBRAL SOUND MODULE
Roland's D-110 – using samples as waveforms to create some stunning sounds.

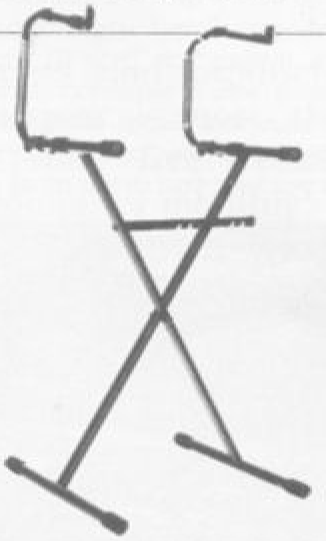
music they get stored away when you save the rest of the music, they get edited correctly if you cut a few bars out, and they don't create problems in synchronising drum machines and other gear. The D-110 and its stereo outputs for drums allow you to work out just this way, composing drum parts on your sequencer just as you compose musical parts. Very mod – and of course it saves you the cost of a drum machine. Then there's the built-in reverb, which can be assigned to any of the instrumental or drum voices, and some built-in demo songs (despite the D-110's not having its own built-in sequencer) which give a quick idea of what the thing's capable of (they're awesome).

The Cheetah's gimmick basically lies in its sound. None of the modern digital synths have ever successfully imitated good old analog strings, brass and filter twangs, so if you're into this kind of sound, the MS6 is the one for you. Six notes may seem a limitation – but you can always buy another MS6 and use its MIDI overspill feature to pair them up. The Kawai, as we've mentioned, seems to specialise in hugeness. If you want to make an enormous sweeping galaxy-crushing sound with one finger and one small grey box, this is the one for you.

CONCLUSIONS

Price may dictate your choice here, but remember that going for the more expensive D-110 may save you the cost of a drum machine as well. If you like the D-110 but can't afford it, the earlier MT-32 offers much the same facilities bu' no separate outputs and no on-board editing (Soundbits, Steinberg and others market good ST-based editors).

If you prefer a rack-mounting format, you may like to wait a month or so for the K1R, which is a K1M in a 19' layout (hopefully without the external power supply of the K1M).■ Andif you prefer digital to analog sounds, you may like to wait for Cheetah's next release, a single-unit rackmount digital synth.



And if you can't stand it any longer......You probably need the new budget keyboard stand distributed by John Hornby Skewes and available through any of their music shop dealers. Codenamed IKS6007 it's a single keyboard x-stand with height and adjustable from 70cm to 93cm, plus an extension for a second keyboard codenamed EKS6008, for just £24.95.

BOOK REVIEWS

Learning about MIDI can be a real headache. You can always check out the MIDI Made Simple articles in the early issues of ACE, but the more reference material you can lay your hands on the better. Over the next couple of months we're going to take a look at some books which could prove a mine of useful information for aspiring MIDInauts. Most of these are imported into the UK by Hal Leonard Publishing who can be contacted on 01-950-0303 for the name of your nearest stockist or ordering information.

THE SAMPLING BOOK

■ £12.95 – Steve de Furia/Joe Scacciaferro

An ideal introduction to the theory and technique of sound sampling. Not too machine-specific, it explains puzzling terms and goes on to give experiments illuminating specific sampling techniques such as looping and truncation (chopping bits off! to you, mate).

It also deals with mapping different MIDI control channels onto different samples and then goes on to more advanced topics such as stereo sampling, microphone types and techniques for passionate do-it-yourself sampling nuts, understanding of sampler specifications and so on. Overall, highly recommended if you're puzzled about sampling or have just bought your first sampler and find the handbook not too helpful.

CASIO FZ-1/FZ-10M APPLICATIONS

■ £10.95 – Joe Scacciaferro/Steve de Furia

A bright and easy to understand guide to Casio's powerful 16-bit samplers. The book starts with basics of sampling technique, lays out the long FZ-1 menu displays before your very eyes, then goes on to give a series of experiments to help you get into the machine. Sample editing, digital synthesis routines, advanced sample looping techniques, playing with LFO modulation and velocity, splits and layers are all covered, and if you've spent over £1,000 on the machine, the book can be regarded as an essential accessory.

THE MIDI RESOURCE BOOK

■ £14.95 – Steve de Furia/Joe Scacciaferro

An A4-format softback acting as 'a guide through the MIDI maze' and basically expanding on the MIDI standard handbook as published by the International MIDI Users Association.

Every MIDI command is listed and its equivalent in hexadecimal given. In addition, typical routines for system exclusive dumps and sample dumps are given, and there's a complete rundown of all the standard MIDI codes including Manufacturer's ID numbers (did you know that 49H stands for Meisoshsa? Who are Meisoshsa? What do they build? I think we should be told.)

System Exclusive routines for companies including Kawai and Yamaha are detailed and there are notes on how to interpret the MIDI implementation charts you'll find in most User's manuals. There's also an index helping you find information by reference to other books and videos in the series.

Lastly, there's a list of MIDI manufacturers, American electronic mail services, bulletin boards and so on. The book's simpler to interpret than the raw MIDI specification but is by no means straightforward enough for beginners – it's really a MIDI designer's reference work.

THE MIDI IMPLEMENTATION BOOK

■ £9.95 – Steve de Furia/Joe Scacciaferro

A matching volume to the above collecting the MIDI Implementation sheets from scores of synthesizers, modules, samplers, drum machines, software packages, remote keyboards and more. Not exactly light reading, but vital if yu want to know whether the Roland MPU-103 MIDI Channel Filter Convertor has Active Sensing (it doesn't) or whether your Korg SQD-1 is playing up when it doesn't record After Touch information (it should).

THE SYSTEM EXCLUSIVE BOOK

■ £19.95 – Steve de Furia/Joe Scacciaferro

Another matching volume doing very much the same for System Exclusive data. If you're trying to write a program to record a MIDI sample dump from a Prophet 2002 onto an Acorn Archimides, here's the data you need to make sure you're getting it all.

ROLAND MC-505 DRUM MACHINE SET-UPS

■ £7.95 – Terry Fryer

Rather expensive for a 14-page ring-binder effort, but basically a vastly simplified, flowchart-oriented, and immediately accessible version of the TR505 User Manual. If you have more money to spend than you have time to waste learning a new machine, this could be the one for you. The same comments apply to the YAMAHA DX7 (MkI) SYNTHESIZER SET-UPS and ROLAND MC-500 SEQUENCER SET-UPS. The latter, however, runs to a big 46 pages this time though! Well, the MC-500 does doa few more tricks...more books next time.

MIDI PANEL OF EXPERTS

You've got a micro, you've got a MIDI interface, you've got a synth...So you've got music, right? Er, well not necessarily...as your letters to Music Doctor Mark Jenkins make clear.

This month's aches and pains concentrate on the Atari ST and on the Casio range of MIDI synths and home keyboards. Keep in mind, though, that we're here to offer help and advice (or at least a shoulder to cry on) for those suffering from computermusicitis of the Commodore, Spectrum, Amstrad or any other variety as well...

I own an Atari 520STFM and Casio HT3000 and recently bought Michtron's Super Conductor software. Unfortunately I found that the Casio, purchased at great expense, only transmits and receives messages in MIDI mode 3 while Super Conductor only recieves and transmits in Mode 1. Is there a way I can get round this? If not, can you suggest any sequencer packages that would work in Mode 3?
JAMES HAMILTON, Edinburgh

MIDI 'modes' have always proved a little baffling, not least since the way they're defined was changed shortly after the MIDI standard was launched. MIDI modes decide how information on different MIDI channels is handled, whether it's used or ignored, and in some cases the mode can only be changed by a signal coming in from outside the unit in question - you'll seldom find a big button marked 'Change Mode' on a synth, and often just a line towards the back of the user's manual tells yo what modes it can slip into.

There are now four MIDI modes, defined as follows; MODE 1: Omni on / PolyMODE 2: Omni on / MonoMODE 3: Omni off / PolyMODE 4: Omni off / Monoof which Mode 2 is seldom used.

Let's look at James' Casio first. In fact this works in any of Modes 1,3 and 4, which are more simply known as Omni, Poly and Mono. In Omni mode the Casio will receive and play notes sent to it on any and all of the 16 MIDI channels, up to the limitation of its 8-note polyphonic capability. All the notes will use the same sound, and if you try to send more than eight notes at once, some of them simply won't sound.

Set Omni Off on the synth and you're in Poly (mode 3) and can set the synth to pay attention to only one MIDI channel (from 1 to 16), again playing polyphonically. So if you send a monophonic bass line on MIDI to channel 2 in Poly mode, you'll only hear the chords.

While the Casio's eight-note polyphonic in Mode 3, you'll find in Mode 4 (Mono) that it can only play up to four notes at once, but they can all be controlled by different MIDI channels and can use different sounds. To get into this mode (never very clearly explained in Casio manuals), hit the Solo button and then the MIDI button; use the cursors to assign a different MIDI channel to each of the four available voices, and if you change the sound selected each time, you'll find voices, and if you change the sound selected each time, you'll find that sound stays locked on to each voice and MIDI channel as well.

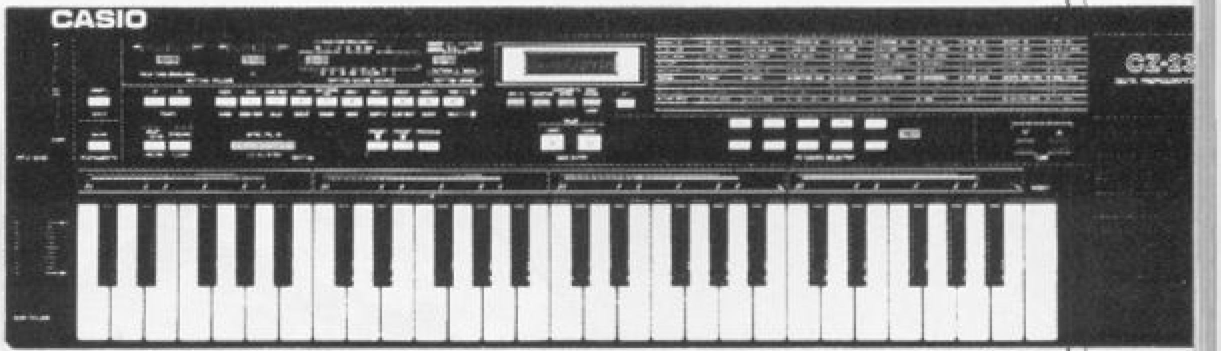
So to get to the solution of James' problem; he could either perform and play back one track of eight-note polyphonic information with the Casio, or four lots of monophonic information on different channels with different sounds if desired. Any limitations aren't in fact in the software; Super Conductor is every bit as good as £400 - plus packages such as C-Lab Notator in the basic programming sense, allowing you to change recorded information to any MIDI channel as desired (it's all down the left-hand side of the display).

BRIAN WALSH of London has similar problems, having set up his Super Conductor and Casio CZ230S and only obtained sound on the computer's internal sound chip. What's the problem here? We dunno (psychic powers on the wane again unfortunately), but one thing's for sure - if the computer's internal sound chip is playing everything, that means none of the musical parts are assigned to be out-going MIDI channels.

Make sure a couple of tracks with active demo information are assigned to a couple of tracks with active demo information are assigned to sensible MIDI channels (say 1 and 2, again down the left-hand side of the display) and then choose a suitable sound on the synth, make sure it's in Omni mode (which will allow it to play all channels) or in Omni off/Poly Mode channel 1 or 2, and play away. If it still doesn't work, you may have a duff MIDI lead (perhaps even the dreaded cross-wired type) or even a duff MIDI output on your micro (you are connected from MIDI OUT to MIDI IN, aren't you?)

NICK STUCKE of Billingshurst has hijacked Flight ACE 101 and come up with the following demands: the identity of (1) an ST sequencer with looping under £100; (2) editing software for the Casio CZ230S; (3) a sound sampler with MIDI that's cheaper than a whole new synth; (4) a company marketing DX21/27 voices on disk; (5) a low-cost high-quality MIDI drum machine, and (6) information on how voice data cassettes for the DX synths work.

Clutching a briefcase full of used fivers, wired for sound and hiding an Uzi sub-machine gun in our underpants, we respond as follows; 1) Michtron *Super Conductor*, 2) *CZ Android* form Syndromic Music, 01-444-9126, 3) Eidersoft's *Pro Sound Designer* with Pro MIDI add-on, or Microdeal's *ST Replay* in its V4 MIDI version launched at the recent PC Show or *Replay Deluxe* with higher quality and added edit/synthesise features to be launched at Christmas, although neither of these would match up to a commercial sampler module, 4) try MIDI music, 33 Barrington Close, Liden, Swindon SN3 6HF, tel 0793 45567, 5) Cheetah's model now on its way, or the Roland TR505 new or second-hand, or a Kawai Perhaps, 6) you plug any cassette player into the synth, get it ready to accept data, play the tape, and VOOM!!, new sounds.



Casio's CZ230S - popular MIDI performer in the budget stakes.

JOHN WHITLOCK of Woodbridge wants to know, among other things, about MIDI modules under £300, of which there isn't a great selection. You can of course get several excellent MIDI keyboards below this price, but expander options tend to offer more features and come in at higher prices. Apart from those in this month's feature, flavours of the month include Roland MT-32 (£425 or so) which will offer brilliant multimbral playing plus loads of sampled drum sounds, or the more professional D-110 (£550) which has wider progammability and multiple audio outputs.

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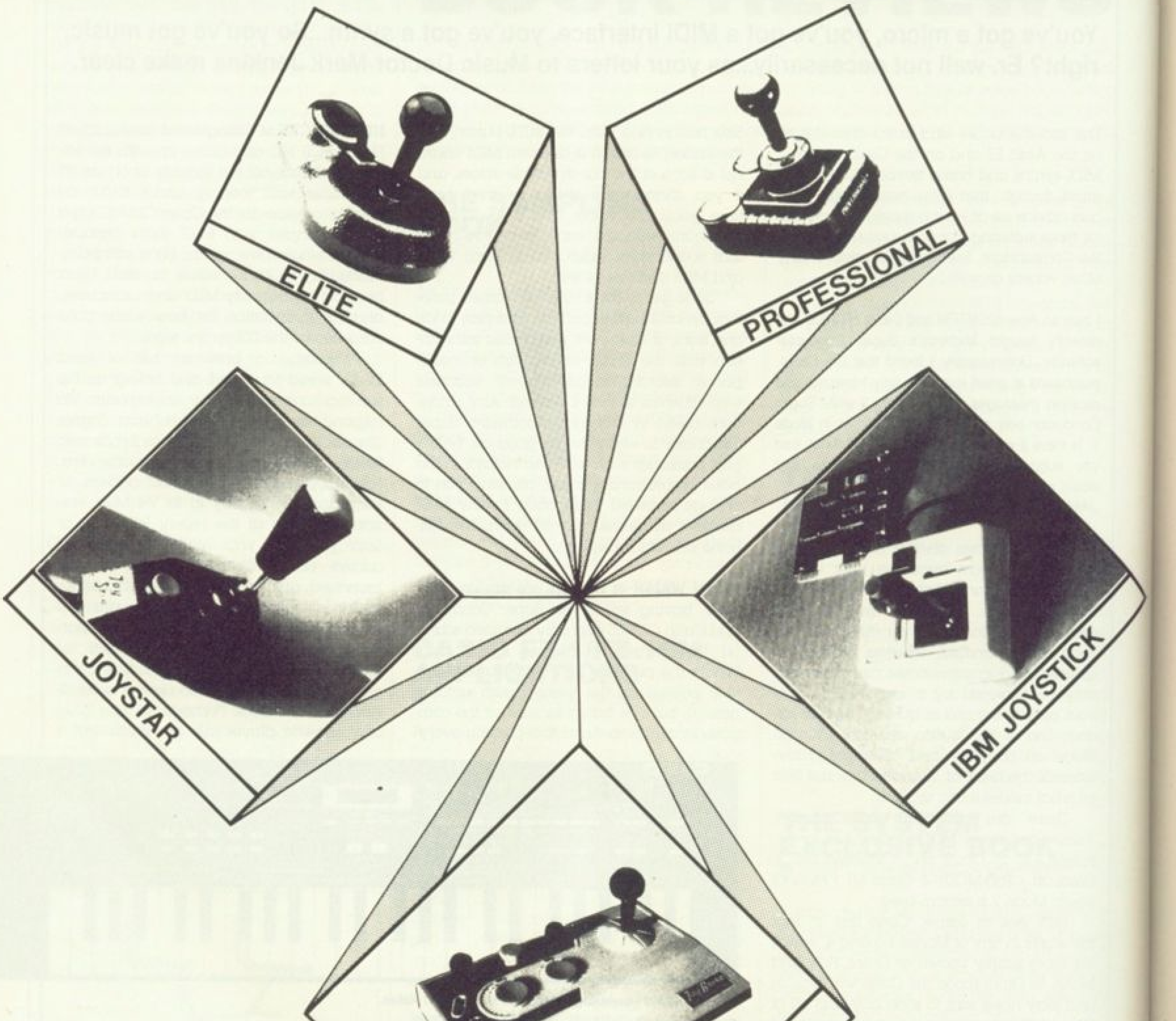
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ROLE UP!

Those of us who prefer a laser, a ship, and a screenful of aliens may turn up our noses at role-playing games. Arcade freaks Andy Smith and Bob Wade certainly did – but now they're changing their minds. Check out the laser-freaks introduction to RPGs and find out what's on offer...

Solid 3D? – old hat. Scrolling shoot-em-ups? – thing of the past. Platform games? – dead as a dodo. If you want to know what's setting the software shelves alight then all you need are three letters – RPG. Role Playing Games are experiencing a surge in popularity that looks set to establish a whole new field in computer games.

So why the boom in RPG's? Computer games have always been a source of escapism and man's quest has always been for ever more absorbing and involved alternate realities. Role Playing Games offered the ideal opportunity to create and control a character of your own. You could take them through adventures alongside other varied and unpredictable wayfarers. If you can't get half-a-dozen friends together for the board games then why not have computer RPG's you can play on your own. Thus the explosion begins. But can you really produce an RPG on a computer?

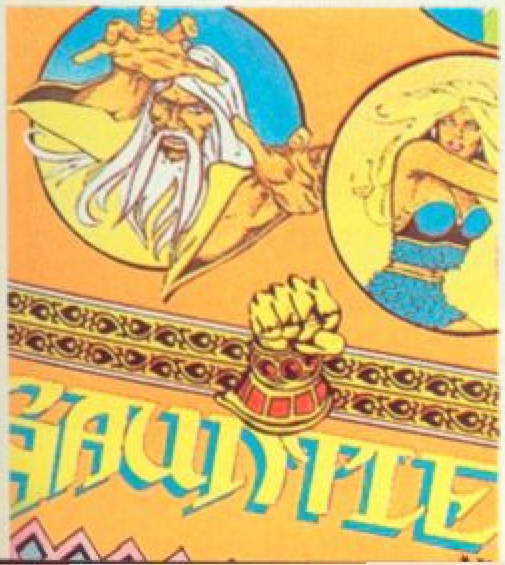
The simple answer is no. Mainly because in a true RPG you have complete freedom to do what you want. If you want to send your character for a sauna in Bangkok in the middle of a game you can – you make up the rules. Clearly computer games can't cope with that sort of thing because they require rules that have to be adhered to strictly – you can't make them up as you go along.

Role playing isn't anything new, computer games have always been about assuming a role – be it a laser base commander, king, magician or pilot. What's new is the ability to choose the character you want to be, maybe define their abilities, and control more than one character at once. Before you had to do what the character (game structure) wanted you to. Recent developments allow you to use characters to do what YOU want to do. However, these so-called computer RPGs are still a long way from the real thing, so to avoid any confusion, we'll call them CRPGs from now on, and leave the term RPG to denote a 'genuine' role-playing game.

There are three basic elements that define a CRPG.

- **A complex world with many different locations, objects and exploration possibilities.**
- **Individual character attributes, preferably definable.**
- **Multiple characters under your control, each with different characteristics.**

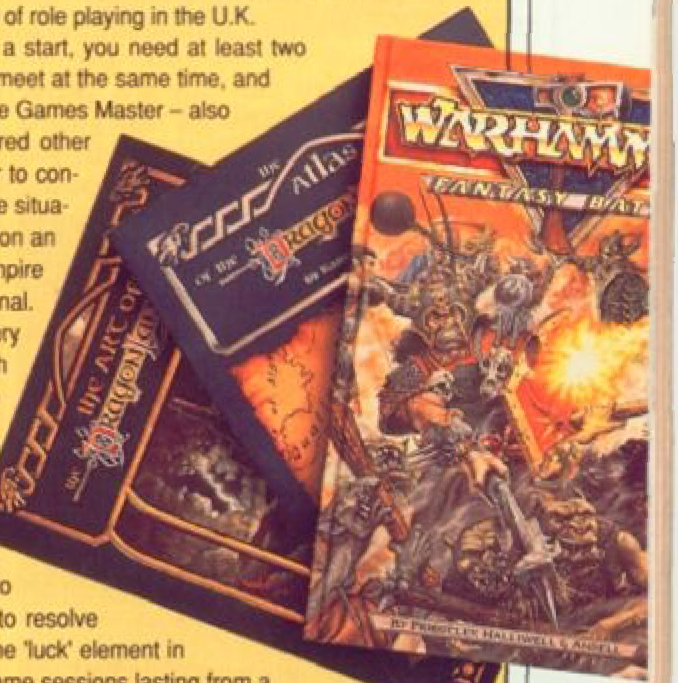
In fact, these principles have influenced many past games that haven't actually been considered as CRPGs. Take *Gauntlet*. It



WHAT IS RPG?

Role playing started a long time ago, but the release of the *Dungeons and Dragons* system in the early seventies is widely regarded as the real birth of role playing in the U.K.

What does playing an RPG involve? For a start, you need at least two people, and preferrably about seven or eight. You all meet at the same time, and the game starts. One of the players is elected to be the Games Master – also known as Dungeon Master, The Keeper, or a hundred other titles – and the other players each create a character to control during the game. The GM's basic job is to describe situations in the game 'world' and the players then decide on an appropriate course of action. The GM also plays umpire during the game, and his decision is usually final. Depending on how flexible the rules are (most are very flexible), you can decide to do almost anything with your character in the game that you wish. The game 'world' is initially created by the G.M., usually after *reading the rule book (which is just about all you* need to play a R.P.G. – and a few pencils and character sheets). Monsters and generally nasty things are often hidden in the game – as well as treasure and other goodies – for the adventurers to find, and often dice are rolled and tables consulted to resolve combat situations. The dice are meant to represent the 'luck' element in the game. The game continues in this fashion, with game sessions lasting from a half an hour once a week, to all-weekend benders until everyone's either bored or decides they can't develope their character any further. The development of your character is a crucial part of an RPG, reacting to a given situation in a certain way can increase (or decrease) any one of your character's attributes, and as the game progresses, you find more and more options open to your character, who's matured in the game.

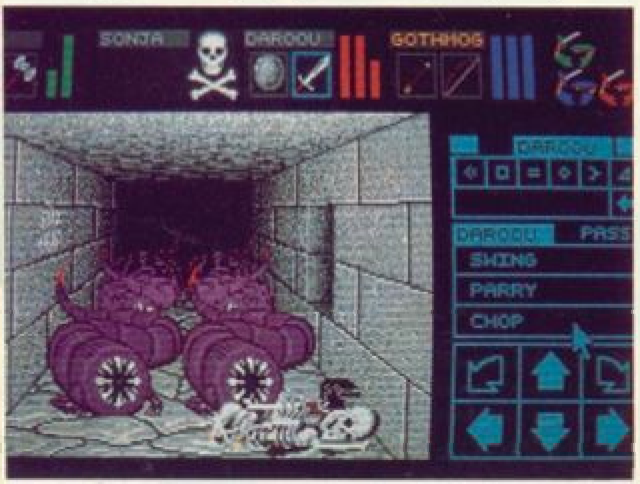


Scenarios or modules for RPG's vary greatly, but break down into two main groups – magical games and non-magical games. Magical games are often called FRPG's (Fantasy Role Playing Games) and are often set in strange worlds in time periods comparable to our Dark Ages. As the name suggests, magic often plays a big part in the game, with spells for this and spells for that being used all the time. Non-magical games are often set in the future or in the present day and magic is little used.

All RPG's vary greatly in their make up and playing style and some people even use minature figures, but the general idea is the same for each, and all you need to do to get into the RPG scene is either join an existing game, or round up some friends and get your own game going.

is in fact one of the closest attempts at a CRPG but in an arcade form. It's certainly got a complex game world with many levels, traps, mazes, enemies and objects. It has four players each with different weapons, powers and characteristics. And importantly it has the idea of co-operation or competition between players.

Going still further back you have *Shadowfire*, the icon-driven game from Beyond. In it you control a team of characters trying to rescue someone on board a spaceship. More conventional attempts at imitating RPGs have come with *Swords and Sorcery* from PSS and *Dungeon Master* from FTL/Mirrorsoft. Both games contained the element of character control and a complex world. However, they've been criticised as being like exploring an NCP car park. The two main problems are that only one player takes part and has to follow the 'right' path to solve it – there's little freedom in the way you go about playing and completing the game.



The all-conquering *Dungeon Master* from Mirrorsoft.

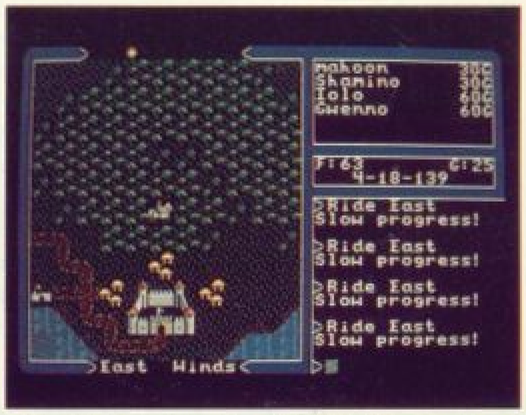
Despite the limitations that computers place on role playing, it's already guaranteed as a growth area. The likely results are much longer lasting and complicated games, which mark the final split from arcade games. You won't ever see a role playing game as a coin-op because the two are incompatible. The development work required on such titles is also likely to drive the price up. The effects of role playing will also continue to filter through to the whole games market, increasing the interaction and emphasis on characterization in all games. ●

WORLDS ON-SCREEN

One of the main reasons for computerising the RPG concept is to make use of your micro's processing power to manipulate the environment, the objects it contains, and the characters you meet there. However, when it comes to actually displaying it on-screen, problems arise. We're still a long way away from being able to present a realistic solid 3D world on your monitor, so a compromise has to be made. This difficulty arises in any game where the fantasy element demands a high level of detail relating to the world you play in. Programmers have tackled the problem in a number of different, distinctive ways, of the which the following two are the best-known examples.

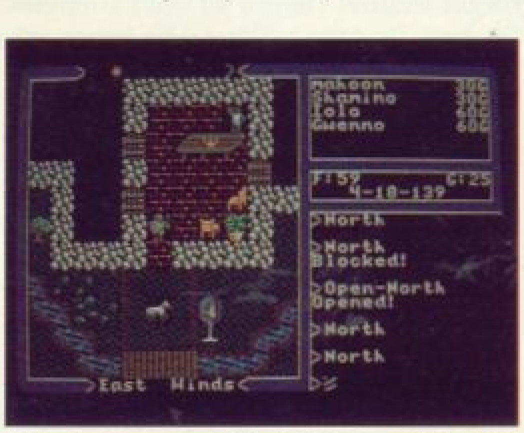
METHOD 1 – THE ULTIMA APPROACH

Apart from when you're in the dungeons (where Method 2 is used), *Ultima* games use a top-down view on the world. An early example of this was Wintersoft's *Ring of Darkness*. The drawback with this method is that it can look very clumsy and unattractive unless the system can handle a large amount of detail. However, although a problem with older machines, the *Ultima* approach promises to deliver some exceptional results on 16-bit models. The screenshots here are from an IBM with EGA...



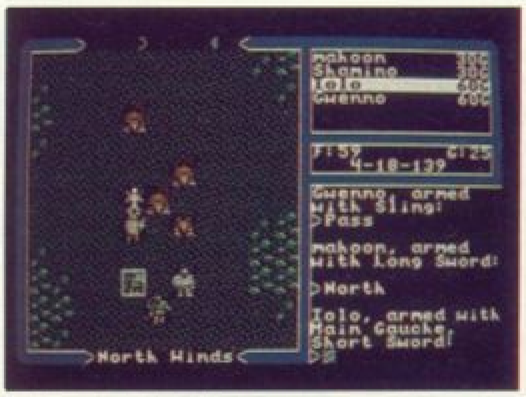
```
Mahoon
Shamino
Iolo
Gwenno
F:63        G:25
    4-18-139
>Ride East
Slow progress!
>Ride East
Slow progress!
>Ride East
Slow progress!
>Ride East
Slow progress!
>East  Winds<
```

Exterior locations use a low-detail representation of the map viewed from above with symbols for terrain features and towns. The single figure represents your party's position and you can move one character block in any direction – unless blocked by water, mountains, or other obstacles.



```
Mahoon
Shamino
Iolo
Gwenno
F:59        G:25
    4-18-139
>North
>North
Blocked!
>Open-North
Opened!
>North
>North
>East  Winds<
```

Interior locations use a higher-detail representation of the town, sufficient to show objects and other computer-controlled characters. However, your party is still represented by a single figure.

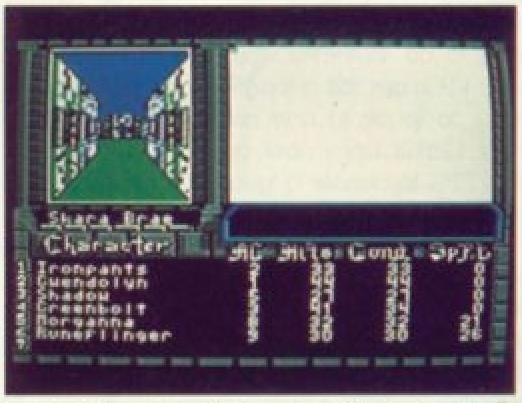


```
Mahoon
Shamino
Iolo
Gwenno
F:59        G:25
    4-18-139
Gwenno, armed
with Sling:
>Pass
Mahoon, armed
with Long Sword:
>North
Iolo, armed with
Main Gauche
Short Sword!
>North Winds<
```

During combat, the display changes to reveal the members of your party as separate figures, enabling you to issue separate commands to each member.

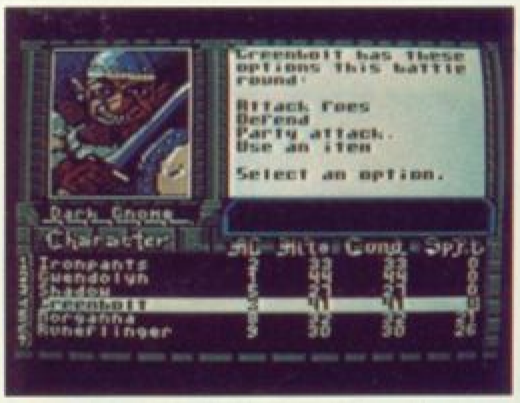
METHOD 2 – THE BARDS TALE APPROACH

The *Bard's Tale* series takes a different approach entirely from *Ultima*, using a head-on display that scrolls as you move around. In this mode, you see only map-features – no objects or other characters. During combat, you see a representation of your opponents. This approach was better suited to 8-bit micros than Method 1 because it doesn't require so



```
Skara Brae
Character      AC  Hits  Cond  SpPt
Ironpants
Gwendolyn
Shadow
Greenbolt
Morganna
Runeflinger
```

In Skara Brae. You're heading down the street and with each move you make, the buildings scroll by you. Controls enable you to turn left or right and to move straight ahead.



```
Greenbolt has these
options this battle
round:

Attack foes
Defend
Party attack.
Use an item

Select an option.

Dark Gnome
Character      AC  Hits  Cond  SpPt
Ironpants
Gwendolyn
Shadow
Greenbolt
Morganna
Runeflinger
```

In combat. You get a visual representation of the enemy, but nothing else. During other parts of the game a similar display is used to show you individual members of your party.

much detail or graphics RAM. However, it threatens to become self-limiting – you would have to redesign the display to introduce greater variety in the terrain, unlike *Ultima* which simply requires to have each screen defined in greater detail.

AN ARCADE PLAYER PLAYS *ULTIMA*

Have you ever declared a dislike for a certain food, and then admitted that you'd never actually tasted it? This kind of attitude is very negative and also very common. ACE's staff writer, Andy Smith, just KNEW he'd never like a serious computer R.P.G. So we made him play *Ultima V* – for long periods of time.

The result? 'I'd never really paid too much attention to the R.P.G. scene, thinking it was some extremely complicated business that looked like a lot of effort for little return. The fact that I'd never played a role-playing game before just shows how easy it is to dismiss something once you've stuck a label on it and decided 'that's not for me'. It didn't take too long however before I started to enjoy playing the game, the characters became more and more believable, as did the game 'world'. The ability to do such a variety of things, and to wander off on little quests that aren't strictly part of your prime directive was wonderful. Now I know what Ive been missing, I'll make sure I don't miss out any more.'

THE BIG ONES

The two most popular role-playing-influenced games have to be The *Bards Tale* series (three titles to date) and the *Ultima* series (five titles to date). In addition, *Wizardry* is very popular in the US but has suffered appallingly here in Britain due to distribution and pricing problems. Produced by Sierra-On-Line, it cost £85.00. For some strange reason it didn't sell at this price and was withdrawn. Ah well...

The *Bards Tale* series are programmed by Interplay Productions, who have recently produced *Wasteland* and *Legacy of the Ancients* (see this month's adventure section). Released through Electronic Arts, the series has been enormously successful. Unlike *Ultima*, the principle interest is hack, slay, and steal as you encounter opponent after opponent. There are literally dozens of spells for combat purposes, some of which are almost ludicrous in their power to destroy the ungodly

One point about *Bards Tale* is that you create characters in a manner similar to some real role-playing games – by the throwing of 'dice'. In other words, the computer assigns a random value to each of the characters attributes in turn. If you're not happy with the results, you can 'throw' again. You can therefore deliberately set out to create, for example, an ideal thief-type character with high scores for dexterity and intelligence. *Ultima V* uses a completely different and rather unusual form of character generation, in which you answer various ethical questions on behalf of your character, who then receives various attributes accordingly. It isn't quite so easy to define, for example, an ideal fighter character using this system, but it is somehow very satisfying all the same.

We still hadn't received, at the time of going to press, a complete version of US Gold/SSI's *Pools of Radiance*, based on the original *Advanced Dungeons and Dragons* with a storyline taken from the *Forgotten Realms* scenario. It looks, however, to be in the *Bards Tale* mould – which means emphasis on fun and frolics rather than the intricate creation of a gameworld with lots of character interaction and objects.

A *REAL* ROLE-PLAYERS VIEW

In the computer industry there is a lot of confusion on what an RPG is and what isn't. Naive arcadesters tend to assume that all role players are sword-wielding homicidal maniacs whose sole purpose is life is to rack up as big a body count as possible. What's often overlooked is the fact that there are many different types of RPG and although some people prefer the hack-and-slay scenarios, wielding power hungry characters that kill first and ask questions later, they're in a minority. Most RPGers would rather develop their character's personality and act out that role.

CRPG's have so far only concerned themselves with the fantasy genre, probably because that's the most popular. *Dungeons and Dragons* and its successor *Advanced Dungeons and Dragons* are the most famous of the FRPG's, partly because they were the first and partly because the system is relatively simple. Some other FRPG's are *Middle Earth Role Playing*, *Warhammer Fantasy Role Playing*, *Runequest*, *Stormbringer* and the list goes on. Some are more complex than others, but complexity doesn't make a good game, it's having fun that counts.

You don't have to restrict yourself to fantasy though, there's science fiction, horror, superhero and silly RPG's. Of the science fiction RPG's *Traveller* is probably the best known system. *Traveller* is set in the far future when men are real men, women are real women and small furry creatures from Alpha Centauri are small furry creatures from Alpha Centauri. Other SFRPG's include *Doctor Who*, *Star Wars*, *Star Frontiers* and *Paranoia*, although *Paranoia* falls somewhere between silly and SF.

There's only one horror RPG, *Call of Cthulhu*, and if you want a game with a tense atmosphere this is it. Monsters in Cthulhu aren't the feeble Orcs or Trolls that you get in FRPG's, but the sort of things that exist only in nightmares, or the imagination of H.P. Lovecraft, whose novels are used as a basis for the game.

Games like *Marvel Super Heroes* and *D C Heroes* allow you to take on the persona of heroic people like Superman, Spiderman, Wonderwoman and any other super beings dreamt up in your own imagination. They travel the world looking for super villains to defeat, people to save and maybe a tiny bit of glory if they can get it.

Last, but by no means least are the silly RPG's like, *Bunnies and Burrows*, *Teenage Mutant Ninja Turtles* and *Toon*. *Toon* is cartoon based, *Bunnies and Burrows* is about...bunnies and burrows and *Teenage Mutant Ninja Turtles* concerns young chelonians with martial arts expertise.

Computer games are generally played by an individual and so CRPG's are also designed with a single player in mind. RPG's on the other hand are played by a group of people with one or two characters each and there's far more interaction between the characters. Parties of CRPG characters tend to be very civilised, don't argue and have no memory of what other characters do to them. If one of the characters in a RPG started stealing from others, or there was some in-party fighting, all hell would break loose and that character would find things going badly for him. Admittedly in *The Bard's Tale* you can fight other members of the party if you want to, but it's pointless and they won't attack back unless you specifically tell them.

CRPG's have started to move towards 'true' role playing games, but they've still got a very long way to go before they come close to even the most simplistic RPG.

Not all RPGers are ugly brutes – this handsome young laddie hails from Games Workshop's Warhammer scenario.

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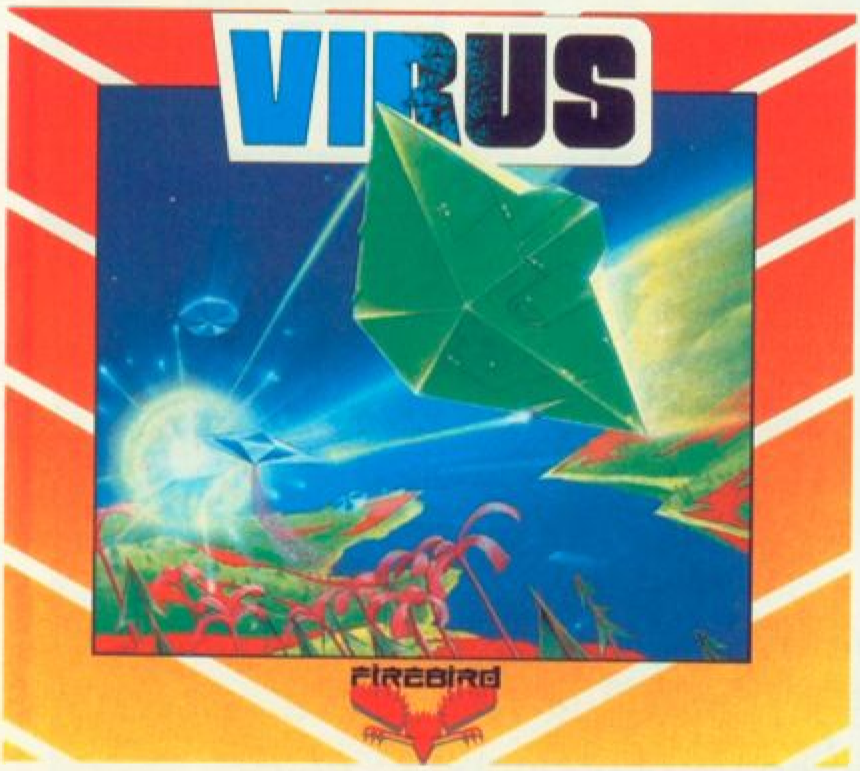

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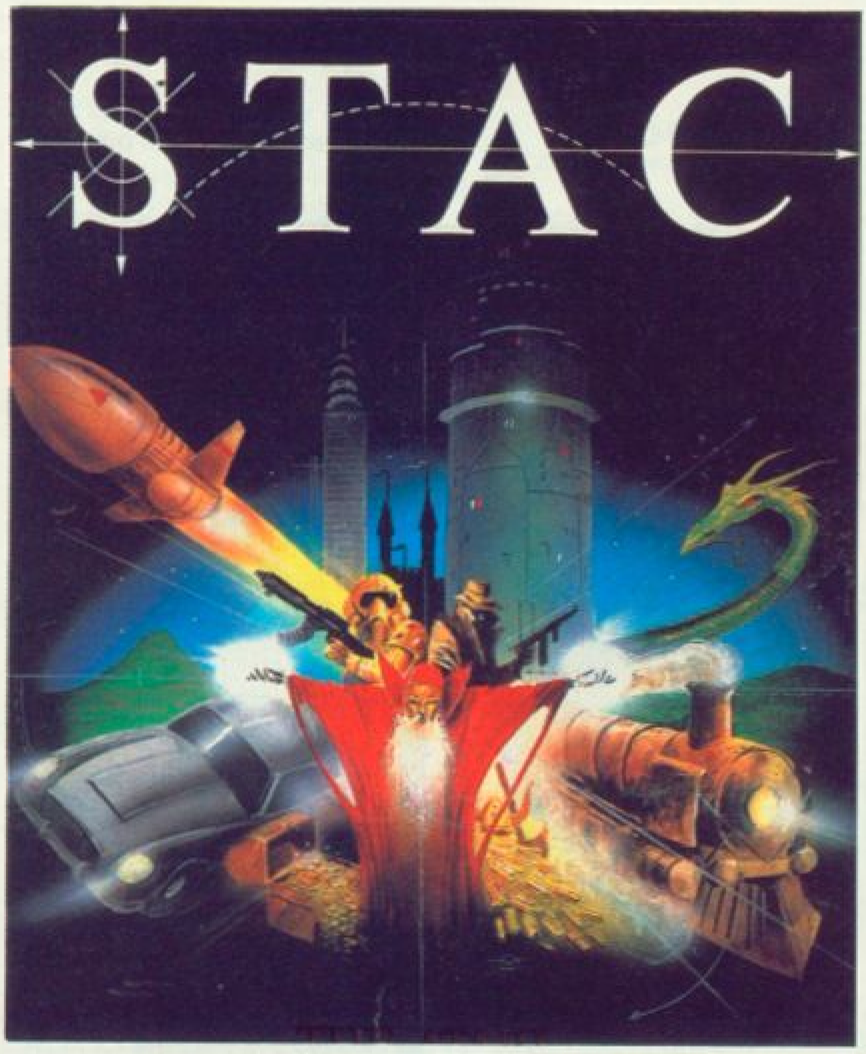

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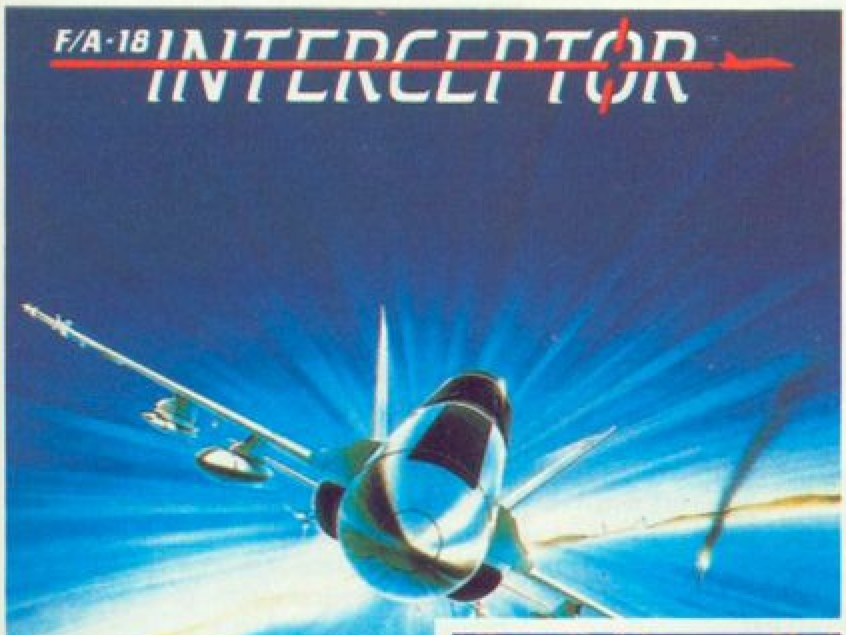

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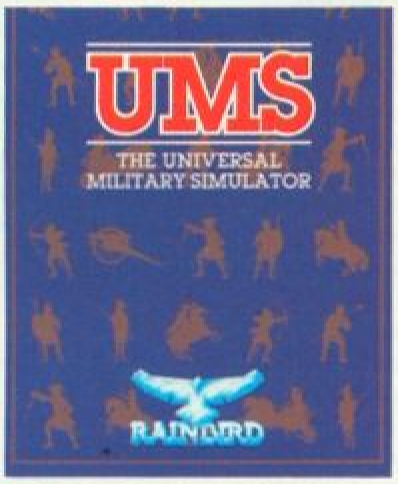

AMIGA TITLES

(In addition to those elsewhere)

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ATARI ST TITLES

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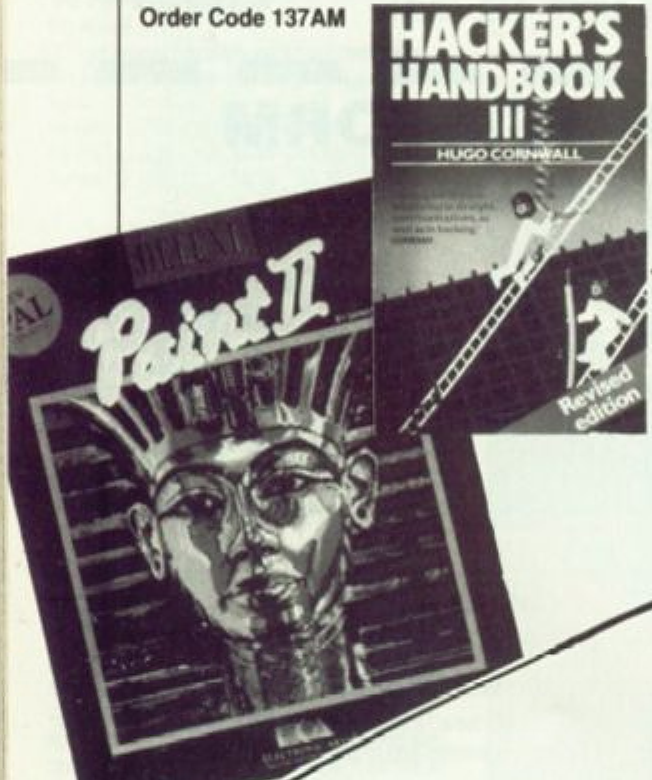

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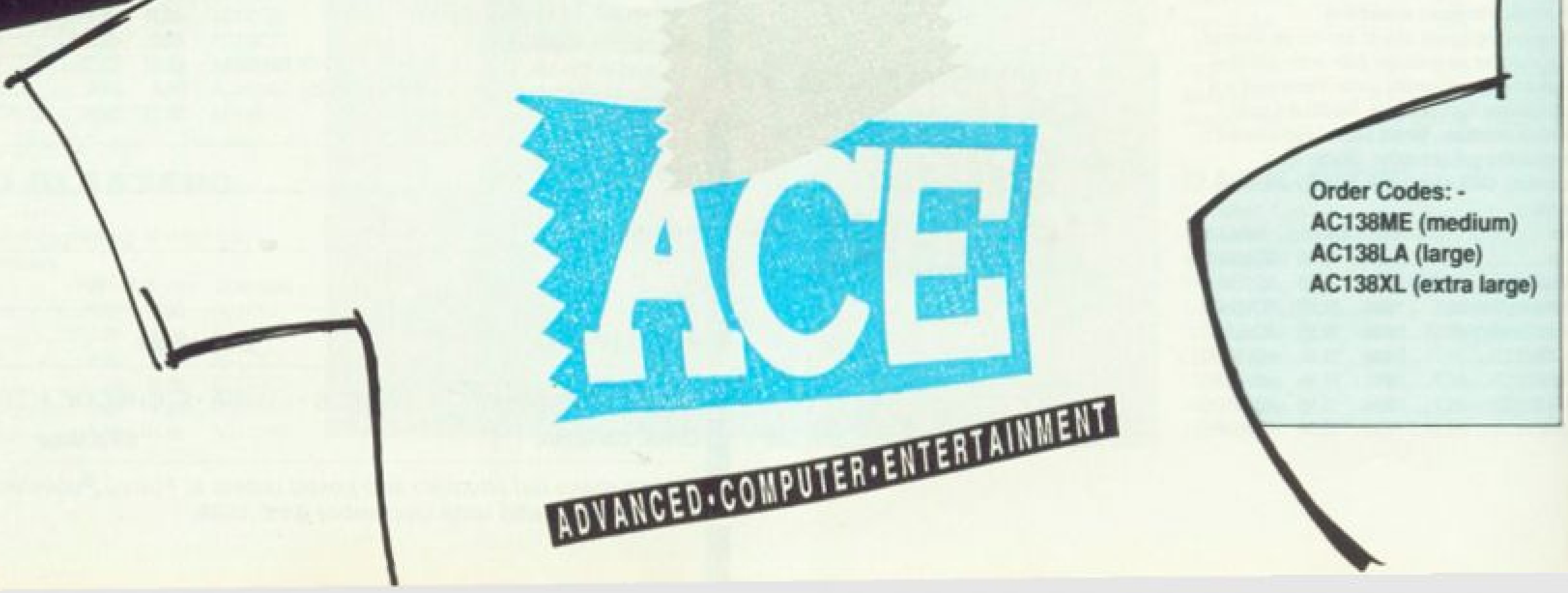

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ACE LETTERS

ADVANCED COMPUTER ENTERTAINMENT

It's been a tough old month for letters, thanks to all that industrial aggro down at the Post Office. Still, the mail got flowing again just in time to liberate these choice missives, and what a bunch they are!

Judge for yourself on the issues of the moment. Is the Amiga 1000 a deeply wonderful machine? Are 16-bit games far superior to 8-bit ones - or possibly vice versa? And just why is it so tough to be an ACE fan down-under? Readers prosecute, Andy Wilton defends and ACE awards substantial damages. (Well, prizes actually.)

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REBELSTAR ON THE BRAIN

PRIZE LETTER

For about two years now I have been considering just what the future holds for the computer gamer, in particular the refinements and improvements that could be made to the old classics.

I mean, what would **Elite** be like with 3D solid filled colour graphics and interactive communication with aliens, barter and blackmail etc. Think of the hours of fun playing **Spy Hunter** with all the sound and graphics of the Amiga or the ST. It could probably be better than the arcade version in the hands of a good programmer.

Though all this may sound fanciful and maybe a little unnecessary there is one game I am aching to see in an upgraded format - **Rebelstar Raiders** . When I had my good old Spectrum two years ago myself and a friend would spend hours, often playing early into the morning locked in mental combat, plotting and risking vital moves, all to reach the ultimite goal of killing off the opposition. The game was quite simply brilliant in its subtle complexity. Now, imagine if Firebird were to rewrite Raiders with all the speed, sound and graphical precision of something like **Carrier Command** or **Virus** I'm sure, no positive, that the game would be an absolute smash.

Raiders still rates as number 1 in strategy charts for the Spectrum, though I have now convinced myself that it will never hold that honoured position in the 16 bit charts. So as my Amiga gathers dust my friend and I shall go on playing Raiders on his humble Speccy until the software houses see sense and release this on a more powerful machine.

Iain Garner
Wembley

*Good old **RR** has something of a following in the ACE office actually, Iain. Battle-hardened strategist Andy Smith reckons it's 'the best tactical wargame ever released for the Speccy', and quite remarkable value for money at £1.99. On a more general point, strategy games - and especially 'sugar-coated' ones with loads of neato 16-bit graphics - are a tremendous way of using your micro, and ought to be a big boom area over the next year or so. Software houses take note!*

LASER SQUAD
SPECTRUM 48K/128K
T

New from the authors of Rebelstar is Target's *Laser Squad*: check out this issue's Screen Test for a full review.

GAMES GHETTOES?

Since you feel that your magazine should review both 8- and 16-bit games, how about a different review section for each? Your present system seems very unfair to the 8 bit games. How can you possibly expect a Spectrum game to compete with the far superior games now being produced for the ST and Amiga? I think your rating system should take into account the different capabilities of each machine. Also I think you should have a 'six months' point on your PIC curves. Surely this is the time when a lot of games lose their interest.

Enough criticism. I am about to upgrade from my Spectrum to an Atari STFM. I was wondering whether it is possible to poke ST games in the same way as Spectrum games as this often added life and enjoyment. If this is possible, why do you not print them in your magazine?

Finally, I think many games would benefit from access codes so that more advanced levels could be reached easily and without having to travel through the rather tedious early screens. Such a system was often seen on early games (see how **Wheelie** on the Spectrum benefitted), but now appears to be obsolete.

Duncan Toms
Melksham

PS How about including ***Daleks*** as a cover game? It looks fun!

*A separate section for 8-bit games? I don't think that'll be necessary at all, Duncan: not while the 8-bit machines have games like **ATF**, **Nebulus** or **Darkside** to stack up against such weedy 16-bit efforts as **Kwasimodo** or **Screaming Wings**! Machine power makes 'far superior' games possible, but most games still fall far short of the ideal. If anything 8-bit machines come out of the direct comparison rather well: let's hope*

SAVED AGAIN?

PRIZE LETTER

I think that your magazine is the best around and is very enjoyable to read. To make it just that little bit more interesting, how about adding to the reviews for Atari ST games by saying whether or not they will save the high-score table?

One of the most depressing things about a good game like **Virus** is to get a very good high-score, type it in but it will not save. I personally would prefer to buy a game that save a high-score to one that doesn't, because this will help you to keep playing and notch up those extra points.

Really, it can't be too hard for a programmer to make the scores save. Take **The Great Giana Sisters** and **Oids** for example, two completely different games but yet both save the high-score table. This really adds to the game. How many of you have written down those high-scores and then lost the paper? You wouldn't have lost the disk!

I'm sure many of you agree with me. So how about a vote?

Colin Long
Middx

On the whole I'd agree with you Colin, but saved high-score tables have their problems around the ACE office. In particular they tend to launch Andy Smith and Bob Wade into frenzied high-score battles which seriously damage their work rate and coarsen their language. To make matters worse, when somebody else (ie yours truly) wants a quiet, non-competitive little game of something, even a really stupendous effort fails to get recorded because the high-score table's full of messages like 'HA HA! BEAT YOU BOBBY!!' or 'ANDY SMITH IS A GIRLIE!!!'. Really, what ever happened to the spirit of sportsmanship and rivalry between gentlemen?

this encourages the software industry to pull their socks up a bit.

We reckon the 'six-month' and 'year' values of a game would be pretty much the same. If you buy a game in Spring and you're still playing it in the Autumn, you can reckon it's got that special something that'll see it through well into the New Year!

ST pokes certainly are possible, and we've been known to print the odd one or two before now. Unfortunately we're not often sent them, and even when we are they tend to be very cumbersome things. Disk protection schemes take a lot of getting round, and 68000 machine code is bulky stuff anyway, so the poke listings are often too large to be worth typing in.

*As for access codes, they're unquestionably a great idea in certain types of game. Who'd play **The Sentinel** if it didn't have codes? Unfortunately they can actually detract from a game in the same way that easily accessible cheat modes do. Take **The Vindicator** for example, a game I played a great deal of this issue. Once you've got the access code for Section 2 (which could take less than a day on the C64 version) you'll never need to go back to Section 1. That's a third of the game in the bin. It's a problem, isn't it.*

***Daleks** as a cover game? Heaven forbid! It's fun alright, but of the utterly, totally, horribly addictive variety. If we gave it away our whole readership would be so hooked, they probably wouldn't be able to drag themselves away from the keyboard even to buy the next month's ACE! No, I think we'll stick to giving away merely brilliant games like **Impossible Mission** and **Spindizzy**, thank you very much.*

GET DOWN AND LOG ON

In reply to the letter concerning the limited social life of the MUG'er, I have the answer to the problem, or rather Compunet has.

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Michael Armstrong
Peterlee

*We're not normally keen on giving shameless plugs to things here on the ACE letters pages unless we can vouch for whatever's being plugged ourselves, and in this case we can't. But enough of **Rambo III**, what about Partyline? Personally I reckon online chat services have their problems - they're certainly no substitute for a real, in-the-flesh socialising - but if the alternative is yet another night watching telly or blasting aliens, they've got a lot going for them.*

SKY-HIGH PRICES

In recent issues of ACE, there has been a lot of attention to the 'new generation' of computer games ie. multi-player games. In issue 12 in the section based on this theme, it says that the best and most practical method of linking computers together is with a satellite network! To me, this suggestion is totally ludicrous. Who on Earth can afford a 'dish' to pick up the signals and who is going to put the obtrusive thing in their garden? The price of a modem is enough, and beyond most people's financial capabilities (including my own).

With the above taken into consideration, it is not surprising that this idea hasn't caught on. What software or hardware company is going to produce games and peripherals for the few who can afford it?

James Ball
Chester

Our 'Global Conflict' feature in Issue 12 was dealing with games-playing a fair distance into the future, James, but satellite TV is already a growing area of entertainment in this country: cheap dishes you pop in your loft could be just around the corner. Who could afford a video recorder or home computer ten years ago? As for software or hardware companies supporting products for the few, there's already a fair amount of this around too. Online games for modem owners started when modems were very pricey bits of kit indeed. They aren't exactly dirt cheap now, come to that, but there's plenty of comms equipment and software around.

USER-HOSTILE

I find it tiresome the way some 16-bit computer owners boast about how technically superior their computers are to 8-bit machines. All right they are in some aspects such as the graphics handling, sound, etc. but what about user friendliness? I own an Amiga and find it a nightmare to program and reformat discs. I've also lost a brilliant drawing of Garfield on Deluxe Paint. It has been saved, but damn me if it will load into the computer. Thinking back to the 48K Spectrum I remember how you switched it on and thereafter anything extra you wanted had to be loaded or programmed in. None of this getting lost in subdirectories or not being able to clear away unwanted windows.

Another aspect which makes the 16-bit inferior to the 8-bit computer is the playability of a game. Many games designers are so carried away by the beautiful graphics and sound that they totally forget about the essential part of the game, the PLAYABILITY. Mind you, this cannot be said for all games.

I feel that the Amiga's potential as a games machine is not being reached. How many times do you hear of an ST game being released, with the Amiga verison to follow in the near future? The near future meaning the time it takes to download the program from the ST to the Amiga. So I am delighted to see a superb game for the Amiga by EA, namely **Interceptor**. For once the tables are turned and it is ST owners that have to drool over a game they cannot have.

Neils Campbell
Dunbartonshire

I know just how you feel when it comes to making the Amiga do simple housekeeping, Neils. The machine's a pig till you get to know it, and can be pretty annoying even once you have! It does seem a shame that operating systems should have become so very complex when all that extra power and all those years of experience should have made them so much simpler. Maybe the next generation of micros will be easier to handle: the Archie is, at any rate!

I think you're being a bit mean over Interceptor. It's not the ST owners' fault that they get so many other games first!

ARCHIE ANGER

When I saw the hardware upgrade guide in issue twelve, I was incredibly surprised and annoyed. It's not that the hardware section is wrong. No, that is basically correct. It's the software sections that had me tearing my hair out in anger. More specifically the Archimedes column. Only two major games for the Archimedes? Rubbish! Did you know that Argonaut software (who did **Starglider**) have produces

Space Adventure Game which is set on Novenia and features incredibly smooth and fast 3D solid graphics. I'd call that pretty major! That's not the only one either and a steady flow is coming out. Ticking over? Is it hell! Take a look at the Archimedes 1987 catalogue and prepare to eat your words! BBC Soft, Computer Concepts, Clares and many other companies which may only be known to Beeb owners are producing software in great numbers for the Archie. There're plenty of art packages around and (ahem) loadsawordprocessors!

I would like to say that the Archimedes does have a very bright future but because the machine is so new, software companies are advertising in Acorn only mags. So for loadsaprogs, look there.

Andrew Williams
Neath

*Since you wrote this you should have seen last issue's **Catch 32** feature, Andrew. With luck this'll have calmed you down a little bit, though it's still worth answering some of your points. Space Adventure Game was a new one on us I must say, but we're aware of several other Archie games. For the most part they're far from top-notch though, and don't even start to use the Archie's enormous power - which is presumably what you'd buy the thing for in the first place.*

*By the standards of the other machines on offer to would-be upgraders, the Archie **is** only ticking over. Micros like the ST, Amiga and Mac are swimming in software comparatively. That doesn't mean the Archie scene won't suddenly boom, but there's no sign of it happening yet.*

HEAVY WAIT

I think your magazine is great except for one annoying problem. By the time it reaches the store in Australia, all the offers have expired. The current issue on sale is the June 1988 edition of ACE. Even your magazine subscription offer expired over two months ago. You do not quote a price for an overseas subscription.

I cannot think of anything more galling than if I were to see my ACE card number in an issue which had expired two months before.

The monthly issues of other mags arrive on time in the first week of the month. Why does your magazine lag two months behind?

Do you care about your readers outside Europe? It would be a terrible pity if you did not, as I find ACE is very informative and always entertaining. Your high quality design and content would ensure your success in the world if you didn't treat everyone else as being inconsequential.

Even two months late, ACE is always a pleasure to read. I wait eagerly for the July issue to arrive.

Keith Fung
Australia

It'll be two months before you read this I'm afraid, Keith, but we positively welcome overseas subscribers. The problem is, we have so many different rates for assorted countries across the globe that we just don't have the space to print them all. In general, the best

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*thing to do is to get in touch with our Somerton branch. Either: write to **The Subscriptions Department, Future Publishing, The Old Barn, Brunel Precinct, Somerton, Somerset, United Kingdom, TA11 5AH**; phone them on **0458 74011**; or (easiest of all) send them a fax on **0458 74378**, and they'll send you details of the rate you'll have to pay. For Australian readers though, I can give you the info right now. Send £34.63 to the address above and they'll put you on the subs list forthwith! (Do make sure that your money order, banker's draft or whatever is made out in pounds Sterling.)*

AMIGA INDIGNATION

I own a Commodore Amiga and if I might say so, am a loyal ACE reader and I do admire your mag. However, several errors were printed in your hardware upgrade guide concerning the Amiga.

Personally I do believe that right here accurate information is essential since you point out what makes a computer different from its rivals. But lets get specific:

Models: Only the A500 is supplied as a keyboard unit with built in diskdrive, the A1000, A2000, A2000B and A2500 are supplied as a PC-like structure, with seperate keyboards. A note on the A2000B, which is an updated A2000, designed to incorporate new videochips, giving the A2000B a resolution of 1024x1008 pixels in 4 colours, this of course without making user of the interlace mode and the use of a special monitor.

Graphics and Sound

Resolution:

Lo-res:	**Normal**
	Up to 352x282 pixels 32 colours out of 4096
	Interlace up to 252x264 pixels 32 colours out of 4096.
	EHB (Extra-Half Brite mode)
	Up to 352x282 pixels 64 colours out of 4096
	Interlace up to 352x564 pixels 64 colours out of 4096
	HAM
	Up to 352x282 pixels 4096 colours on screen
	Interlace up to 352x564 pixels 4096 colours on screen.
	(note not every pixel can be a random colour.)
Med-res:	**Normal**
	up to 704x282 pixels 16 colours out of 4096
High-res:	**Normal**
	up to 704x564 pixels 16 colours out of 4096

English mags do not have a good name concerning hardware, if I might say so. If you want to know something about that you'll have to solicit for example a German magazine. But of course when getting into the games world there are the English mags as yours.

Still I hope you will give hardware a chance, I loved the Flare One article, as a matter of fact.

Rob Takken The Netherlands

I don't know whether you're referring to the old or new-look Hardware Upgrade Guides, Rob, but I've got last issue's in front of me and I can't really see any mighty Amiga inaccuracies in it (except for a slight mix-up over the number of sound channels it has - we've fixed this now!). The resolutions we quote are, we feel, the best compromise we can make between drowning everyone in figures on the one hand and losing precision on the other. The figures don't reflect the absolute theoretical limits of the hardware, but rather the practical limits worked to by software and imposed by monitor capabilities. They cover the modes normal people can actually use, rather than the ones that take C or 68000 programming knowledge to get at. German magazines do indeed cover the latter very well, but I don't really think this benefits anyone greatly - or not when they're making buying decisions, at any rate.

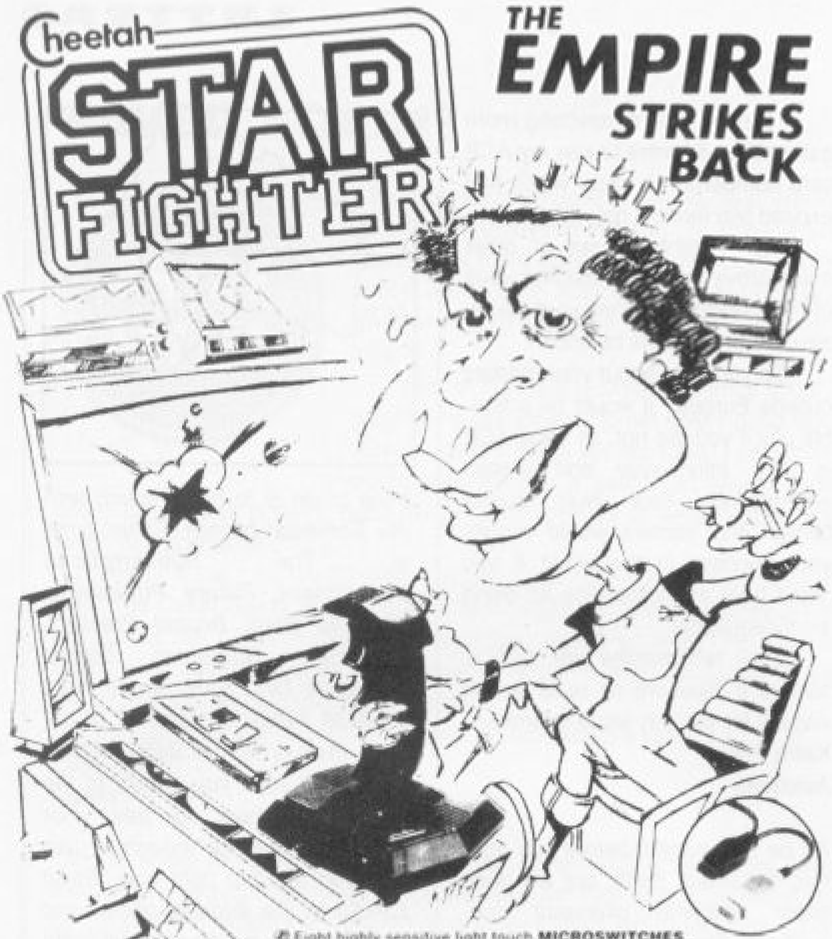
AMIGA INDIGNATION REVISITED

The people that made up that last Hardware Upgrade Guide must have got a few screws loose, calling an Amiga 1000 'creaky old'. It still is an Amiga and this means it beats the 'Miracle of the Eighties' (The Atari ST, one has to beleive, if he reads your mag regularly) easily when it comes to graphics and sound. I think it is even better than the A500, with the separate keyboard and the 'lengthy boot-up sequence' with the disks lets me use Kickstart 1.1 to1.3 without problems. It is a mistake from Commodore not to continue the A1000 series. If they would take the trouble to modify it, it would fill the gap that exists between the A500 and the A2000. I bought mine almost two years ago with a 'puny' memory of 512K (the same as the 520STFM, I thought?) and it still is sufficient for the majority of software on the market.

L Stynen Belgium

*Having used both an A1000 and an A500 extensively, I have to say I find the A1000 distinctly creaky. The separate keyboard is a boon of course, but the memory as standard is only 256K (yes, **puny**) and the extra pre-boot sequence is a pain to put it mildly. The ability to use older, more crash-prone versions of the operating system is hardly enough to make up for this as far as I can see. Add in things like its lack of Extra Half Brite mode and you've got a machine I'd put below, not above an A500.*

THE EMPIRE STRIKES BACK



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If a particular game's driving you up the wall and you don't think you'll be able to retain your sanity unless you can beat it – here's the place to look. Cheating's what it's all about sometimes, so don't feel bad consulting the *Draconus* and *Marauder* maps. Don't get hit by a guilt attack as you type in the *Alien Syndrome* poke. Just do it! And show the computer who's REALLY boss!

OVERLANDER

■ Playing tips for the ST version of this destructive driving game.

LEVEL 1

1. Select counterfeit money.
2. Fuel up to 14 notches on fuel guage.
3. Get turbo, 4 battering rams and 2 flare bombs.
4. After the first bikes have passed, slow down or the gunners will kill you.
5. Destroy trucks from as far away as possible.
6. Slow to 100-150mph to negotiate barriers.
7. If you stay in the middle lane when you come to the wrecks, you will not be damaged.

LEVEL 2

1. Select kidnapped official.
2. Fuel up to half full.
3. Buy leanburner, a few rams and bullet proofs and flare bombs.
4. After 1st bikes there's a nasty surprise in the valley below.

LEVEL 3: DARKLANDS

1. Select plutonium.
2. Fuel up to half full (if you have leanburner – if you don't then fuel up to max).
3. Buy rams, bulletproofs, flare bombs (or lives if you need them).
4. The toughest part of the course is early on, so don't be afraid to let loose with the flare bombs.

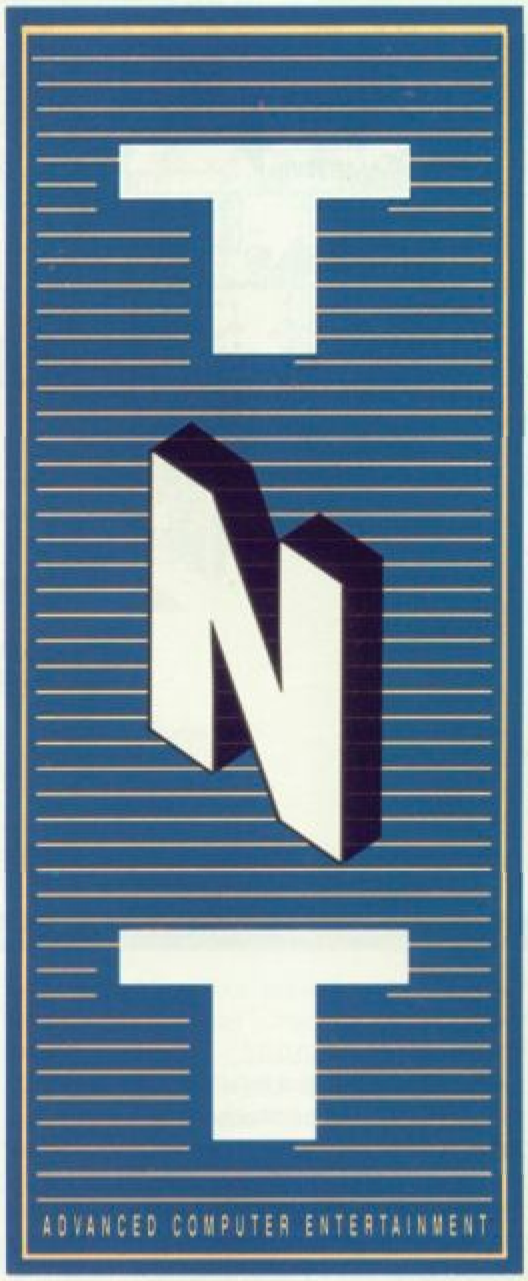
LEVEL 4: THE GUTTER RUN

1. Selct illegal chemicals. Fill up to max level.
2. Buy maximum rams, bullet proofs, as many lives as you can afford and flare and smart bomb (depending on your bank balance).
3. The barriers are everywhere on this level and you will need to be at 90-100mph to avoid them all. Try to save your rams until later in the level.
4. So you didn't like the 'gunshot alleys' in levels 1, 2 and 3? The alleys in level 4 are real mean. Smart bombs and bulletproofing are your best chances of survival.

LEVEL 5: GRAVEYARD

1. Choose the President. Fill up to maximum fuel.
2. Buy everything. $40,000 upfront plus whatever you had left from the last level should be enough. Lives should be on the top of your shopping list followed by rams, proofing, brakes, armour and weapons – don't bother with the wheelblades!
3. Do the same as for the last level. Because your car's at maximum everything, this level shouldn't prove to be too difficult.

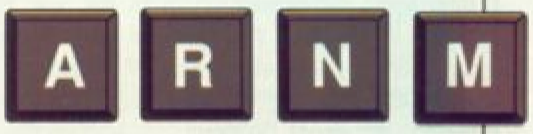
J.Merrifield, Devizes.



THE GREAT GIANA SISTERS

■ A short and sweet tip for the C64.

Press the keys A,R,N and M all together during the game to advance a level.

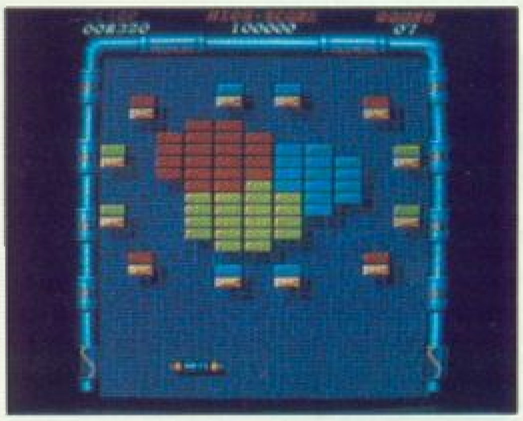


Jo Potts, Altringham

ARKANOID II

■ A little tip for Amstrad bat 'n' ball fans.

Once the game has loaded, press the keys w, e, d and f all at once. There should now be a border around the screen. Now start playing the game, and press ESCAPE once at any time during the game and the exits will appear. This should work on every level.



Jason Dale, Wakefield.

CAPTAIN BLOOD

■ Having trouble finding the clones? Here's a couple of tips that should make your life easier.

1. As soon as the canyon is spotted, immediately go left and up, thus flying over the canyon wall (do this early to avoid a crash). You will then be in another canyon that's usually wide enough for you to fly at top speed without worry.

2. To find the first clone, load the game again and again until you are at the planet Bow-bow (Yoko's planet). Ask Yoko about Maxon, his 'pop'. Ask Yoko co-ordinates of Croolis-Ulv. Teleport Yoko. Drop Yoko on an uninhabited planet. Go to Croolis-Ulv.

Start a conversation about Croolis-Var and he will tell you the co-ordinates of four of the Croolis-Var planets so you can destroy them. Kill the Croolis-Vars (you may be able to extract information about the other Croolis-Ulvs first). Go back to Croolis-Ulv. Ask for the co-ordinates of Sinox. Go to Sinox. When asked code, answer "Impossible not Sinox". Now say "1010" and he will give you the co-ordinates of planet 256 (the next Sinox planet). Go to planet 256. Talk about Antenna and get the co-ordinates. Go to one of the Kristo planets then persuade the Antenna to teleport. Drop the Antenna off on an uninhabited planet. Repeat for all Antenna. Go to planet 256. Sinox will give you the co-ordinates of where Yoko has gone to. Go to one of the Rob-head planets and ask him the co-ordinates of Maxon. Go to Maxon. When asked identity say "Yoko". Before he goes he will say "danger planet rendezvous 67 forbidden". Go to the new Yoko planet. When asked the identity of Maxon's planet say "danger planet rendezvous 67 forbidden". He then tells you the co-ordinates of Number 1 (Blood's first clone). Go there!

Kevin Ng, Runcorn

ALIEN SYNDROME

■ With these four ST cheats you'll now have no excuse not to do really well.

Type the listing into ST basic, insert a blank disk and RUN the program. A file "ALIENCHT.TOS" will be saved to the disk. RUN this program and wait for the disk drive to stop. Now insert the Alien Syndrome disk 1 into the drive and press a key. The game should now load normally with whatever cheat(s) you've selected.

There are four cheats in the program; each has its own lines of data (lines 310-340). Simply omit the lines of cheats you don't want but keep a copy of the basic program so you can experiment with different combinations. You can include all the cheats if you wish but you may find that a little too easy!

```
10 rem The great Alien Syndrome cheat
20 rem by Mark Richardson
30 rem It's easier if you key this in in medium res
40 rem Don't use all the cheats at once
50 rem That would be too easy!
60 addr=&h7fd00
70 def seg=0 'only 1985 version of basic
80 for f=0 to 201 step 2
90 read w$:poke addr+f,val("&h"+w$)
100 next f
110 poke addr+f,0
120 poke addr+f+2,&h42
130 poke addr+f+4,&h1200
140 bsave "aliencht.tos",addr,208
150 end
160 '
170 data 601a,0,ae,0,0,0,0,0
180 data 0,0,0,0,0,0,2a4f,2a6d
190 data 4,202d,c,d0ad,14,d0ad,1c,680
200 data 0,500,2200,d28d,281,ffff,fffe,2e41
210 data 2f00,2f0d,4267,3f3c,4a,4e41,dffc,0
220 data c,3f3c,8,4e41,548f,4267,4879,0
230 data 7a,3f3c,4e,4e41,508f,42a7,42a7,4879
240 data 0,7e,3f3c,3,3f3c,4b,4e41,dffc
250 data 0,10,d040,2068,8,6100,1e,2e40
260 data 2f00,4eef,104,2a2e,2a00,5e61,7574,6f5c
270 data 616c,6965,6e2e,7072,6700
280 '
290 ' here are the optional cheats
300 '
310 data 217c,4e71,4e71,43a2 'invulnerable to aliens
320 data 217c,4e71,4e71,5fa8 'unlimited time
330 data 217c,4e71,4e71,5a30 'permanent map
340 data 317c,4e71,524c 'collect only 1 comrade to open exit
350 '
360 data 4e75,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
```

CHEAT DETAIL

1. Invulnerability – Simply walk right through all aliens and guardians and anything they throw at you.

2. Unlimited time – Stops the time clock counting down.

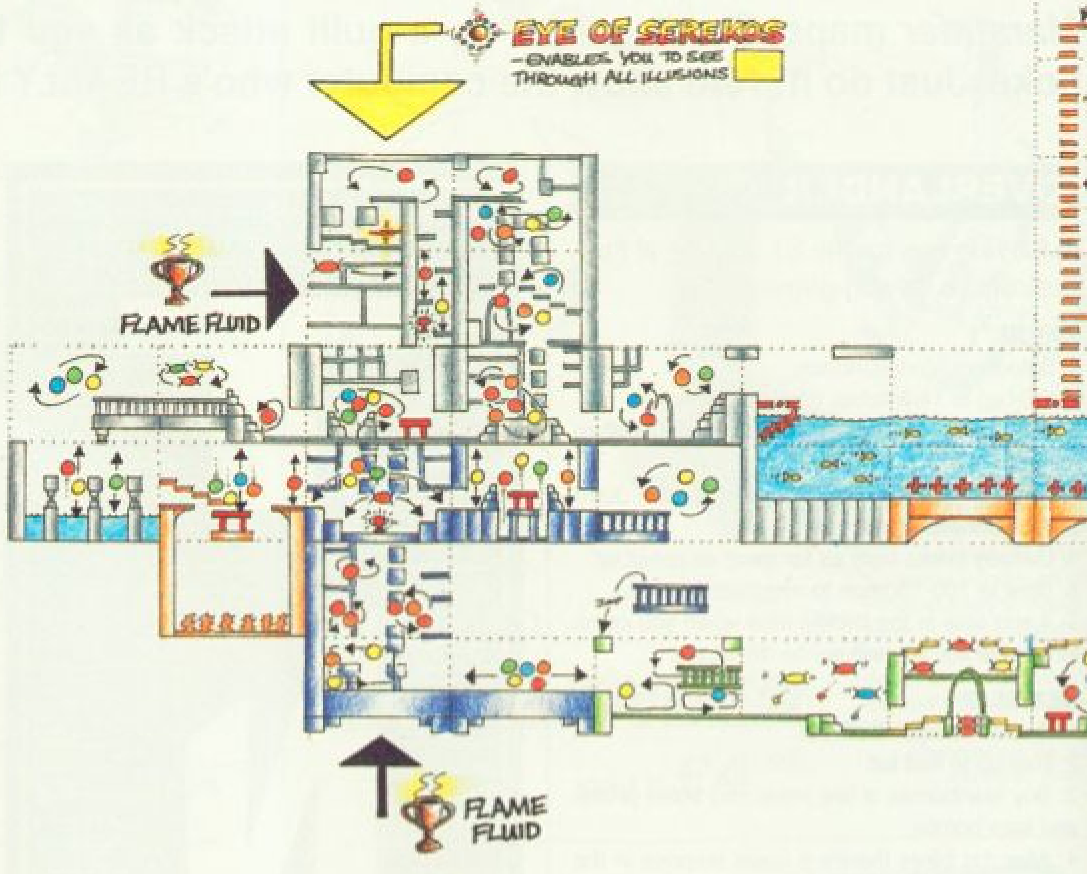
3. Permanent map – Put the map up and it stays there (this slows the game down somewhat).

4. 1 comrade to exit – The exit will open and allow you to leave after you have rescued just one of your comrades. The others will be there for you to collect and you will only score bonus points for those you rescue.

Mark Richardson, Preston

DRACONUS

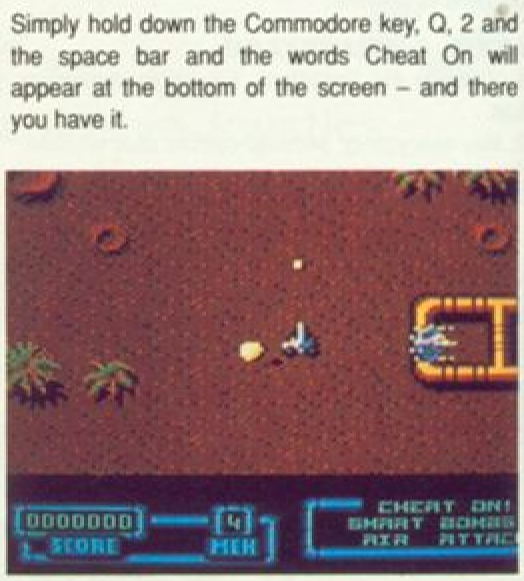
Ian Thomson, Dairsie



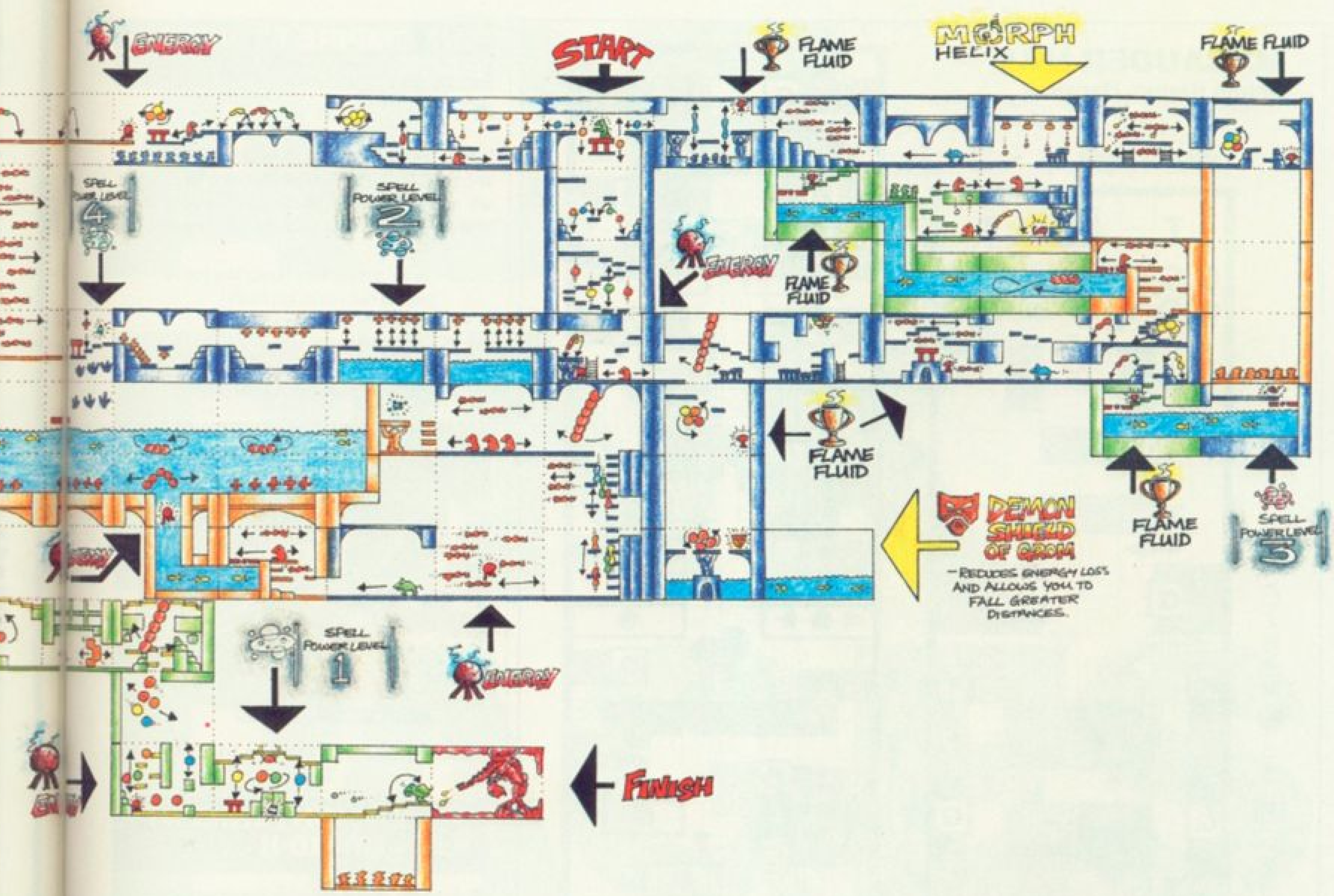
MARAUDER

■ Wanna disable the sprite collision detection on the C64?

Simply hold down the Commodore key, Q, 2 and the space bar and the words Cheat On will appear at the bottom of the screen – and there you have it.



The Wiz Kid, London


ENERGY
START
FLAME FLUID
MORPH HELIX
FLAME FLUID
SPELL POWER LEVEL 4
SPELL POWER LEVEL 2
ENERGY
FLAME FLUID
FLAME FLUID
DEMON SHIELD OF GROM
– REDUCES ENERGY LOSS AND ALLOWS YOU TO FALL GREATER DISTANCES.
FLAME FLUID
SPELL POWER LEVEL 3
ENERGY
SPELL POWER LEVEL 1
ENERGY
FINISH
ENERGY

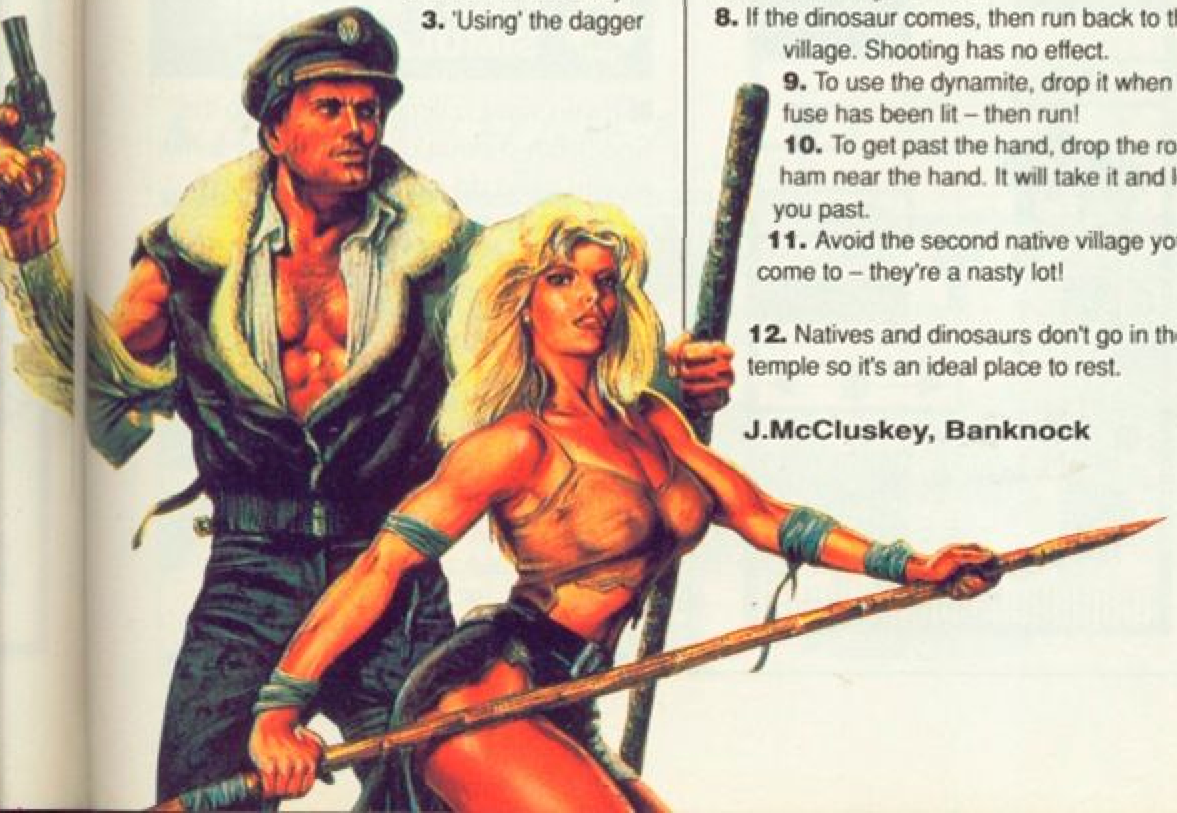
WHERE TIME STOOD STILL

■ These Spectrum tips may help you to keep your team alive a little longer.

1. Switch off the music, as the sound effects warn you of approaching danger.
2. If you hear the warning sound for the bird, then fire your gun. This scares the bird away.
3. 'Using' the dagger will replenish your food supplies.
4. Selecting the water bottle near the river will re-fill it.
5. When crossing the swamp, try to stay on the opposite side to the monster.
6. When trading with the villagers, drop an object as soon as you meet the chief. Giving the villagers the purse (which Gloria's carrying) will result in them giving you a leg of ham as well as a box of food.
7. Don't leave the village until nightime, as this is the safest time to travel.
8. If the dinosaur comes, then run back to the village. Shooting has no effect.
9. To use the dynamite, drop it when the fuse has been lit – then run!
10. To get past the hand, drop the roast ham near the hand. It will take it and let you past.
11. Avoid the second native village you come to – they're a nasty lot!

12. Natives and dinosaurs don't go in the temple so it's an ideal place to rest.

J.McCluskey, Banknock



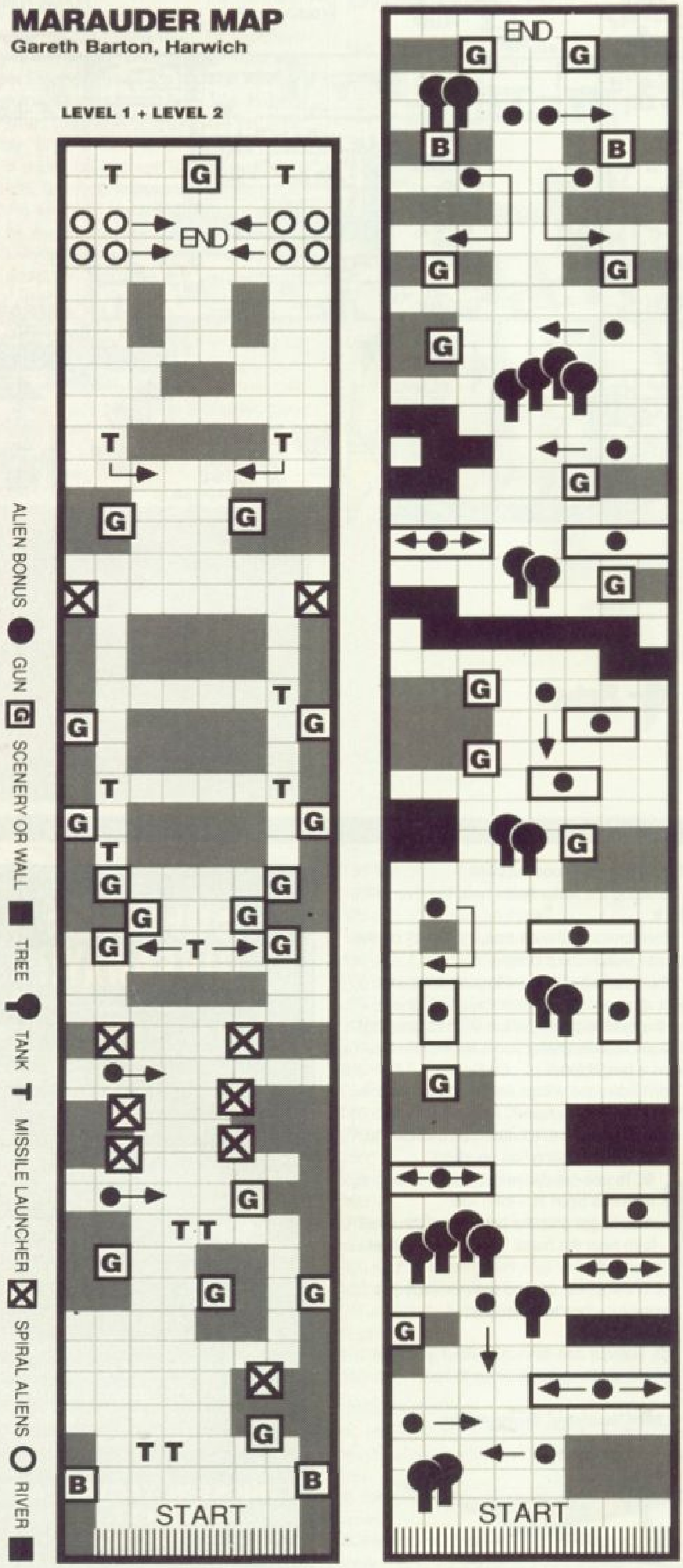
SOFTWARE GIVEAWAY!!

With the price of software what it is today, what could be better than winning yourself upto SIX top-rated games for your machine? Ian Thomson picks up this month's 'Tip-of-the month" prize for his *Draconus* map. He'll soon be playing *Dark Side*, *Fernandez Must Die*, *Barbarian II*, *Netherworld*, *Mickey Mouse* and *The President Is Missing*. Mark Richardson wins a copy of *Overlander* for his ST as does J. Merrifield. Matthew Houghton and Stephen Phythian both win copies of *Bionic Commandos* for their Spectrums and Jason Dale wins *Marauder* for his Amstrad. Don't hesitate, get those maps, tips and pokes sent in to the following address:

TRICKS 'N' TACTICS, ACE,
4 QUEEN ST, BATH,
BA1 1EJ

MARAUDER MAP

Gareth Barton, Harwich



THE EMPIRE STRIKES BACK

■ A neat ST cheat.

When playing the game, hold down the TAB key and type VEKTOR GRAFIX (including space). This will enable the cheat mode giving invulnerability. Also the following keys have the following effects.

T= tacky cheat mode (looks like you're playing but you're not really).
L= Picture of Luke Skywalker
D= Picture of Darth Vader
C= Picture of C3PO
ENTER= Returns to normal play.

Martin Calvert, Barrow-in-furness

① ENLIGHTENMENT – DRUID II

■ A short poke for infinite energy for the Spectrum version.

```
1 REM DRUID II POKE
10 FOR F=65024 TO 65031
15 READ A:POKE F,A
20 NEXT F
30 PRINT AT 10,5:"START DRUID II TAPE"
40 LOAD""CODE
45 POKE 64058,254
50 RANDOMIZE USR 64000
100 DATA 62,58,50,60,117
110 DATA 195,0,111
```

② FRUIT MACHINE SIMULATOR

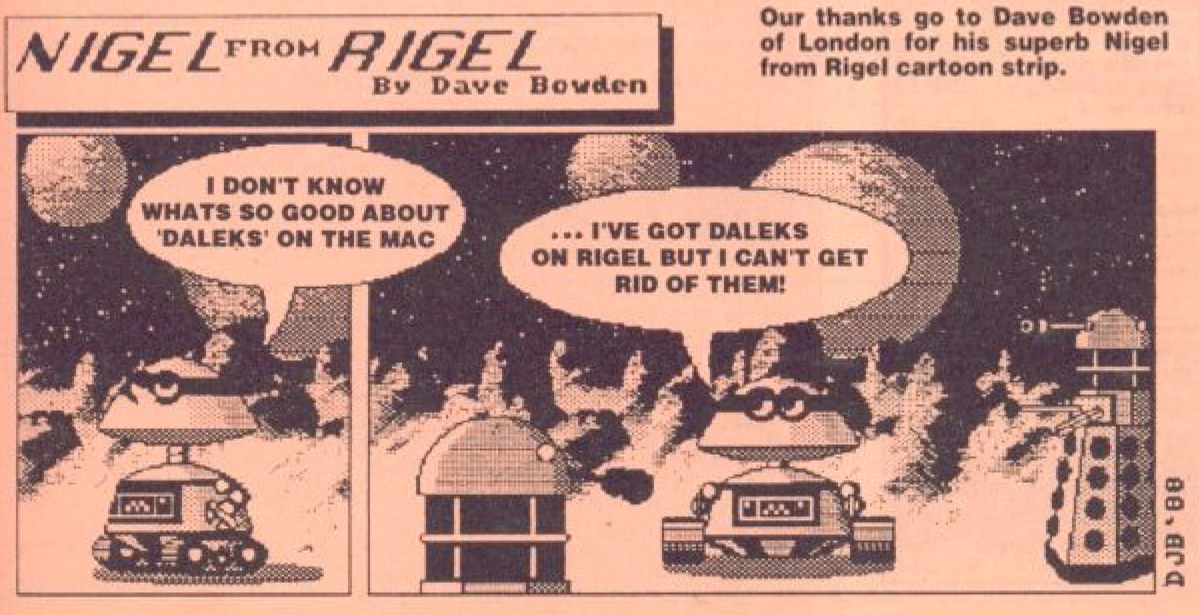
■ If you want unlimited money on the Spectrum version of this popular game, all you need do is type in this listing.

```
1 REM FRUIT MC SIM POKE
5 BORDER 1
10 PRINT AT 10,1;"START FRUIT MC SIM TAPE"
20 LOAD""SCREEN$
30 FOR F=23296 TO 23315
40 READ A:POKE F,A
50 NEXT F
60 RANDOMIZE USR 23296
70 DATA 221,33,123,95,17
80 DATA 130,158,62,155,55
90 DATA 205,86,5,175,50
100 DATA 234,192,205,27,207
```

1&2. Mathew Houghton, Rotherham

ACE PINK PAGES

Upgrading to a more powerful computer? Check the facts. Buying a new game? Check the ratings. Bored with life? Check the puzzles. All in ACE's premier, pinkest, pages.


NIGEL FROM RIGEL
By Dave Bowden
I DON'T KNOW WHATS SO GOOD ABOUT 'DALEKS' ON THE MAC
... I'VE GOT DALEKS ON RIGEL BUT I CAN'T GET RID OF THEM!
DJB '88

Our thanks go to Dave Bowden of London for his superb Nigel from Rigel cartoon strip.

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● **N'Gar Thrombobo threatens the populace of Grimleythorpesdale when he invades the sewage disposal plant...**

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will free the galaxy. The puzzles can get **very difficult** indeed, and you'll often have to split Head and Heels up to use their **different capabilities**. The game's 300 locations are wittily drawn, and the animation is excellent throughout. **A** real **classic**.

ACE
CLASSIC
★

MAGIC KNIGHT TRILOGY

Mastertronic ● *Knight tyme* ● Spectrum £2.99cs ● Amstrad £2.99cs ● C64 £2.99cs ●*Spellbound* ● Spectrum £2.99cs ● Amstrad £2.99cs ● C64 £2.99cs ● *Stormbringer* ● Spectrum £2.99cs ● Amstrad £2.99cs

This trilogy is a series of **menu-driven** arcade adventures which, as well as all the expected **running** and **jumping**, have a **complex system** of **interaction** between characters. In *Spellbound* you must rescue Gimbal the Wizard from the fearsome Castle of Karn; in *Knight Tyme* you have to find a way back in time after being catapulted into the 25th century, while in *Stormbringer*, the final part, we find that the magic knight has been split in two, one part good, the other evil. You can't kill yourself, so the only solution is to merge the two halves. But how? **Lots of action**, plenty of thought and **good graphics** make **all three winners**.

STRATEGY GAMES

The games for megalomaniacs. The games listed in this section will really test your mettle on the battlefield.

ACE
RATED 950
AMIGA

BALANCE OF POWER

Mindscape/Mirrorsoft ● Amiga £26.95dk ● Atari ST £26.95dk ● IBM PC £26.95dk ● Mac £26.95dk

Definitive strategy game for **16-bitters**. The player takes the role of one of the superpowers, while either the computer or a friend takes the other. Then it's a case of trying to win friends and influence people on a **global scale**. This can be achieved in a number of ways, including supplying arms or financial aid to radical factions in the hope of toppling a government which is not receptive to the great American or Russian dream (depending on which side you're playing). It's complex, involving and it's difficult to play in ten minute sessions. **Absorbing stuff** that gives an **insight** into the **devious** world of **geopolitics**.

ACE
RATED 927
ST

CARRIER COMMAND

Rainbird ● Atari ST £24.95dk ● Amiga £24.95dk ● Amstrad £14.95cs £19.95dk ● Spectrum £14.95cs £15.95dk

A magnificent strategy game **spiced** with some great **arcade action** – As commander of the aircraft carrier Epsilon, it's your job to stop the invasion of an island archipelago by the rogue aircraft carrier Omega. **State of the art graphics** mix tremendously with **great gameplay** to make an enthralling and **entertaining** game.

ACE
RATED 949
PC

DIPLOMACY

Leisure Genius ● C64 £12.95cs £14,95dk ● PC £24.95dk

The **grand old man** of **nasty negotiation** boardgames makes it onto home computers and how! The game can handle up to **seven players** and it's an **engrossing** and madly addictive game that's **a must for micro megalomaniacs**.

ACE RATED 940 PC

REACH FOR THE STARS

Electronic Arts ● PC £24.95dk

This terrific game of **space exploration** and **conquest** may not be the best looking PC game around, but it's certainly one of the most fun. You start the game with a planet around a star and have to **fend off** (and eventually conquer) **attacks** from the **other three players**. It's not easy to get into, but once you do you'll be **well** and truly **hooked.**

ACE CLASSIC ★

UMS

Rainbird ● Atari ST £24.95dk ● IBM PC £24.95dk ● Macintosh £34.95dk ● Amiga £24.95dk

Rainbird's *Universal Military Simulator* is designed to simulate a conflict between two forces on a **user-definable terrain** that can be viewed in **three dimensions** from any one of **eight directions**. The program **heralds a new era** in 16-bit computer wargaming. The ST version is available now with the other versions following shortly.

ACE RATED 981 AMSTRAD

VULCAN

CCS ● Spectrum £9.95cs ● Amstrad £9.95cs

An **elegant**, **simple** and **ingenious** wargame, *Vulcan* covers the Tunisian campaign of 1942-43. A huge **playing area** and air attack phase make the game an improvement over the same author's earlier works *Arnhem* and *Desert Rats*. *Vulcan* is fast, efficient and simple to play, and **no self-respecting** wargamer should be **without it**.

SIMULATIONS

Games that put you at the controls. Whether you're flying helicopters,or aeroplanes, or steering bobsleighs, simulation games can become very involving.

ACE RATED 901 SPECTRUM

BOBSLEIGH

Digital Intergration ● Spectrum £9.95cs ● Amstrad £9.95cs £14.95dk

Bobsleigh is a **thrilling** game with enough **strategy involved** to add another dimension to a **highly competent** and addictive simulation. Have you got the stamina to win your way into one of the top three positions by the end of the season? Remember, **sponsors don't back losers**. Unfortunately, though *Bobsleigh* is available for the C64, it's a poor game compared to the Amstrad and Spectrum versions and is therefore not recommended.

ACE RATED 912 C64

CHUCK YEAGER'S ADVANCED FLIGHT TRAINER

Electronic Arts ● C64 £9.95cs £16.95dk ● PC £24.95dk

Chuck Yeager's flight trainer takes the flight simulator genre a **step further** by including a **training option**. Chuck will guide the novice through such difficult moves as aileron loops and rolls. With **so much** in **one package** it will take **many hours** of instructive **fun** to master all the avilable options.

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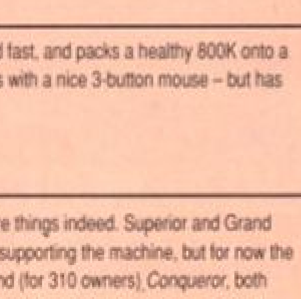
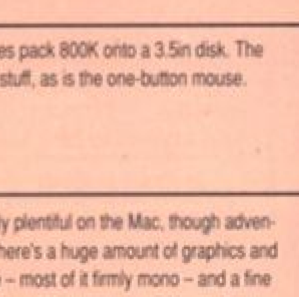
	ACORN ARCHIMEDES	APPLE MACINTOSH
THE RANGE	The 305 and 310 are home machines, while the 410 and 440 are only really of interest to serious users.	The Mac SE comes in a distinctive upright monitor/system box with built-in drives, while the Mac II's system/drive box and dedicated monitor are separate. Both have separate keyboard and mouse.
MEMORY & CHIPS	The 305 has 512K of memory while the 310 has 1Mb, but both use Acorn's own super-fast 32-bit ARM chip as their central processor.	Though both machines have 1Mb of memory, the SE only has a Motorola 68000 to push it around while the II uses the much faster (but closely related) 68020.
PRICES	Recommended retail prices start at £801.60 for the 305 on its own. There's no sign of a second-hand market as yet.	Recommended retail prices start at £2,294 for the SE and £4,329 for the Mac II. Macs tend to keep their value well, so second-hand ones aren't terribly cheap. Cut-price brand new ones are rare too, so the cheapest thing can be to personally import one from the States (i.e. fly to New York, buy a Mac and bring it back with you).
GRAPHICS	Screen resolution is variable: typical modes would be 320x256 in 256 colours 640x256 in 16 colours or – with an expensive multi-sync monitor – an impressive 640x512, again in 16 colours. There's one hardware sprite – the cursor – but with that speedy ARM chip for power, the Archie's blindingly fast in software.	The mono-only SE has a screen resolution of 512x342, while the Mac II runs to a 1027x760 screen in 16 colours, chosen from a palette of more than 16 million!
MONITORS	B/w – composite video; colour – RGB + sync; no TV modulator.	As well as the built-in (SE) or dedicated (Mac II) Apple units, there are plenty of third-party monitors offering million-pixel screens and similar. Like most things Mac-ish, these get very pricey.
SOUND	The Archie's built in sound features 16 channels (in 8 stereo pairs) and a range of six octaves, all fed through a good-quality internal speaker.	The Mac's four-channel sound chip can produce some very acceptable noises – stereo on the Mac II – but you'll need a third-party MIDI port add-on if you're serious about music.
DRIVES, MICE & JOYSTICKS	The built-in drive is quiet and fast, and packs a healthy 800K onto a 3.5in disk. The Archie comes with a nice 3-button mouse – but has no joystick port!	The fast, reliable built-in drives pack 800K onto a 3.5in disk. The keyboard's very high-quality stuff, as is the one-button mouse.
SOFTWARE	Games for the Archie are rare things indeed. Superior and Grand Slam are both committed to supporting the machine, but for now the only major titles are *Zarch* and (for 310 owners) *Conqueror*, both ACE-rated games. There's still no sign of a game that really pushes the Archie to anything like its limits. The handful of graphics packages available should keep art-loving Archie owners happy for now. Other applications areas are ticking over nicely if not exactly booming.	Games software is not terribly plentiful on the Mac, though adventurers are well catered for. There's a huge amount of graphics and desk-top publishing software – most of it firmly mono – and a fine range of titles for the business user. There's also plenty of great software for the MIDI musician, but it doesn't come cheap.
PROSPECTS	The Archie's educational leanings make for a poor games outlook – there's no sign of support from any of the big-league houses – and the lack of a joystick port doesn't help. The graphics software base would mushroom if Acorn cut their prices, but until then things don't look too hot here either.	The future for the Mac is excellent, but mostly on the serious side of things.
OVERALL	The Archimedes is years ahead of its time, and vastly more powerful than the competition. A stiff bit of price-cutting would make it an unbeatable leisure machine, but Acorn just don't seem to be interested. At the current price it's a worthwhile buy for computer scientists and people with money to burn, but that's about it.	The Mac's a very upmarket machine, and is priced accordingly. Almost essential for DTP users, it's a luxury item or Yuppie toy for the rest of us.
RATINGS	**Graphics** 5 **Sound** 4 **SOFTWARE:** **Range** 1 **Quality** 2 **Prospects** 2 	**Graphics (SE)** 3 **Sound** 4 **SOFTWARE:** **Range** 4 **Quality** 5 **Prospects** 4 

ATARI ST	COMMODORE AMIGA	IBM PC AND COMPATIBLES
The 520STFM and 1040STF both come as combined keyboard/system/drive consoles.	The A500 is a single unit with built-in disk drive, while the A2000 has a separate keyboard and system box.	IBM's PC is the original, but the best buys these days are 'clones' like Amstrad's PC1512 and 1640. Specifications apply to most modern PCs, but check the details for yourself before buying.
The 520STFM has 512K of memory, while the 1040STF has 1Mb. Both use the Motorola 68000 processor.	The A500 has 512K of memory and the A2000 a hefty 1Mb, both of them using a Motorola 68000 for processing power.	PC compatibles normally have 512K or 640K of memory, with an Intel 8086 or related processor. (The 8088 is slower, while the 80286 and 80386 are faster but more expensive.)
Recommended retail prices are 520ST – £299.99, 520ST plus 20 free games – £399.99, 1040STF –£599.99. There's a strong second-hand market in 520ST's, but most of these are fitted with the old single-sided (360K formatted capacity) drive.	Recommended retail prices are: A500 £399, A2000 £1236. Shop around for lower prices or package deals. There's a fair old second-hand trade in unwanted A500's, though the recent drop in RRP means that prices here may not be too good. Also still available is the creaky old A1000, the first Amiga model and, with its lengthy boot-up sequence and puny (256K) memory, deservedly discontinued.	Prices start at around £400 for a mono PC, but a 640K machine with an EGA display and top-flight monitor will cost more like £1000. There's a thriving second-hand market, and even buying brand new you're well advised to shop around.
TV or colour monitor users can get at two screen modes on the ST, medium res (640x200 in 4 colours) and low res (320x200 in 16 colours), both working from a 512-colour palette. Users with mono monitors can only access one mode, high res, which gives them a 640x400 screen in black and white.	Hardware sprites and scrolling make conventional games easy to write, while the built-in blitter greatly speeds up large-scale graphics operations. Typical screen modes are 320x200 in 16 colours for games, 320x256 in 32 or 4096 colours for art, or 640x256 in 16 colours for serious use. In all cases, colours are taken from a palette of 4096.	The three main graphics standards are CGA, EGA and Hercules. None of these offer sprites or scrolling in hardware. The main CGA (Colour Graphics Adaptor) modes are 320x200 in 4 colours and 640x200 in mono. CGA has no palette as such: the 4-colour mode comes in two colour-scheme choices, but that's all. An EGA (Enhanced Graphics Adaptor) PC can produce these two CGA modes plus a few of its own, offering displays of up to 640x350 in 16 colours from a palette of 64. Hercules graphics are mono only, but with a maximum resolution of 720x348 they can be very useful for applications like DTP (Desk-Top Publishing).
RGB, Mono, or built-in TV modulator (520ST only – 1040ST needs separate modulator).	SCART output for e.g. Commodore's A1081 monitor (£349.99, but look out for bunding deals). TV modulators are available, but aren't included in the price.	Normally standard RGB, with no TV output.
The internal sound chip's poor, with only three channels and no stereo, but the built-in MIDI port's made the ST a must for penny-wise musicians.	Built-in sound is excellent, with 4 channels in 2 stereo pairs offering you a nine octave range or some reasonable human-ish speech. You'll need a third party add-on to get MIDI compatibility, mind you.	A weak sound standard is very much the PC's Achilles' heel as a games machine, and speaker quality is usually low accordingly. MIDI interfaces are available, but the ST and Mac still beat the PC as machines for the musically minded.
The internal drive stores 720K on a 3.5in disk, though there are still some old 520ST's around that can only manage half this capacity. A two-button mouse plugs into one of the inconveniently situated controller ports, leaving the other one free for a joystick.	The Amiga's built-in drive is often noisy and always slow, but it does pack 880K onto a 3.5in disk so it's not a total disaster. The two-button mouse takes up one of the machine's two controller ports.	Though 5.25in 360K disks are still the standard, the newer 3.5in 720K drives are becoming more common. There are two different joystick standards, IBM (which is analogue, and the norm for older or American games) and Amstrad (which takes a standard Atari-style stick).
With the best games support of any machine listed here, the ST's probably still leading the upgrade race. Graphics software's some way behind the Amiga but catching up fast, with new titles stretching the ST's limited hardware quite remarkably. The ST's built-in MIDI port has earned it outstanding support on the music front, with some excellent packages from a wide range of companies. Serious software's looking up too.	On the games front the Amiga's now coming out of the ST's shadow, at least to the extent that most ST games also appear in Amiga form. Unfortunately they are still usually straight conversions, taking no account of the Amiga's extra hardware. There's a wide range of art, video and animation packages for the machine, many of them excellent. Music's less well catered for, but the built-in hardware's got great potential.	There's a vast software base for PCs, but relatively few games that are good by modern standards. This situation's rapidly improving though, as is the art side of things (especially on the EGA front). Music software is available (if rather expensive), but it's only on the serious side of things that the PC really wins out.
Great, especially if the price cut materialises as expected. The ST's rapidly catching the 8-bit market leaders on numbers of titles, and easily outstripping them on quality.	Looking very bright now, thanks to Commodore's recent price cut.	Prospects for a PC games boom are good, especially if Amstrad's rumoured ultra-cheap PC leisure clone shows up.
An excellent all-rounder, the ST delivers no-frills power at an affordable price. It's number one for MIDI fans, terrific for games and – with mono monitor – a great machine for serious use as well.	Though its hardware makes it a great games machine, the Amiga still lacks the software to really show it off properly. It's a must-buy for the computer artist, however.	The PC's a fine all-round machine, and the workhorse of modern computing – but if you're just interested in games or music, you'd best look elsewhere.
Graphics 4 **Sound** 3 **SOFTWARE:** **Range** 4 **Quality** 4 **Prospects** 5 	**Graphics** 5 **Sound** 5 **SOFTWARE:** **Range** 3 **Quality** 4 **Prospects** 5 	**Graphics** 4 **Sound** 1 **SOFTWARE:** **Range** 5 **Quality** 5 **Prospects** 4

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RANDOM ACCESS

Ah! The joys of sewage! This month N'Gar Thrombobo checks out the internal logic of his local effluent treatment centre, the ACE Team compile another set of TPLs (otherwise known as Totally Pointless Lists) and invite you to submit your own. Next year, we plan to do a list of your favourite lists...PLUS, of course, the ACE Crossword, the ACE Puzzle, and the solutions to previous posers.

THE ACE SERIAL

The Git In The Machine: Part 3

N'Gar Thrombobo was not an ambitious sprite, he did not seek fame, glory, personal wealth or even a nice cottage in the country. He just wanted total and absolute domination of the entire universe. And in penetrating the computer network of North Grimlythorpesdale Municipal Sewerage Flocculating Plant he was convinced that at last he had achieved his aim.

It was Fred Mulchbucket, Assistant Detritus Disposal Officer, who made the fatal mistake. In attempting to download a copy of Sewerage Flow Simulator from Head Office by modem, he dialled the Claghandle number instead. Eleven seconds later he perished beneath a deluge of only semi-treated material simultaneously released from wastegates 2, 5 and 19. By the time the rest of the Plant personnel had cleared the offices of the backlog, N'Gar Thrombobo had enthroned himself unnoticed in the central memory banks of the North Grimlythorpesdale Municipal Sewerage Flocculating Plant before anyone could smell a rat.

To N'Gar Thrombobo's consternation, alas, it proved impossible to dominate the universe from a Sewerage Flocculating Plant. It was possible, however, to reverse the polarity on the sewerage pumping motors and pressurise the entire sewer network from East Slatepittrough to Grimleythorpsedale...

THE ACE PUZZLE NO8

Set by Archie Medes

CHASE THE ACE

Last night I had a strange dream: I was seated facing the Magician. Between us was a table on which lay four packs of playing cards, each containing the standard 52 cards. From each of these packs the Magician removed the ace of spades, placing these four cards face upwards on the table. Pushing the remainder of each of the packs towards me he instructed me to shuffle them together to make one large pack of 204 cards. This I placed face down on the table.

Taking each of the four aces in turn, he pushed each of them separately into the pack and, squaring up the cards, he picked them up and dealt them as follows:

He moved the top card to the bottom of the pack and then discarded the card that was now at the top. This procedure - top card to bottom, discard top card - he repeated over and over, for what seemed like eternity until just four cards were left in his hand. The remaining cards lay scattered around us. From somewhere out in the darkness came a roll on the drums as he stretched out his hand to turn over these four remaining cards, which proved to be...

At this point I awoke! Now, I have no doubt that these four cards would have each been an ace of spades. If this was so, can you say in which positions, counting from the top, these aces were originally inserted?

I think the Aces were at the following positions:

the .... card, the .... card, the .... card and the .... card

NAME ....

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....

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Set by Mips

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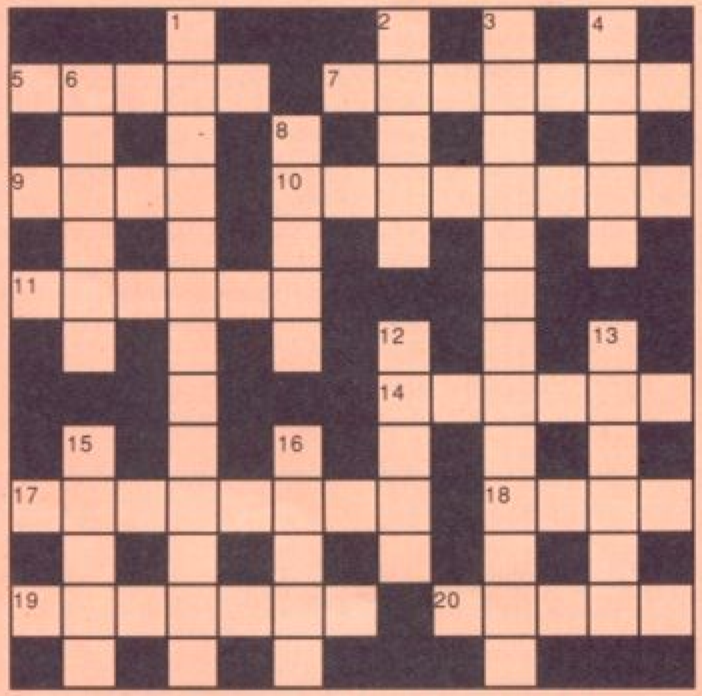

ACROSS

5. Ready to fight for dream program (5)
7. Nord and Bert's house (7)
9. Unequal chances in competition (4)
10. Acclaim for the producers of Test Drive (8)
11. Boy cried about getting first computer (6)
14. Duel or new program could be noisier (6)
17. Game thrown down as a challenge from U.S. Gold (8)
18. Aim to get out of gaol (4)
19. Gives back the profits (7)
20. Fib in article, 'Space Creature' (5)

DOWN

1. With spare time Einstein, perhaps, forms a software house (7,6)
2. Find way into bag for a bite to eat (5)
3. Global rounds played in game from Electronic Arts (5,4,4)
4. So Diz played the game (5)
6. Blushing, was ahead in Starlight game (3,3)
8. Archie's game (5)
12. Find it in Slippery Eel game (5)
13. The threat of a computer game (6)
15. Earl's developed a type of printer (5)
16. Aircraft's panel switch (5)

CROSSWORD ENTRY FORM

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SOLUTION TO ACE PUZZLE NO6

The division is 19019396 / 748 = 25427 and the first winner out of the bag is **Steve Wood** of **Wolverhampton**, who wins £25 worth of software for his machine.

First, the individual lines of the division are numbered for easy reference. Two additional digits have been denoted by the lower case letters 'b' and 'd'. The significance of these will be explained later.

During the course of the long division the value 'ACE' is multiplied by each of the digits of the quotient in turn. The results of these multiplications are entered at lines iii, v, vii, ix and xi. As each of these has four digits, none of the digits in the quotient can be zero or 1. Further, A must be greater than 2 since ACE times A (line xi) has four digits. We can see from this that, as we are told that all occurrences of A, C and E are in place, the product ACE times C results in a four-digit number (line vii) which does not contain any of the digits A, C or E. A similar result is given in line xi for ACE times A.

In the listing, lines 100 to 140 generate all possible values for ACE, and lines 150 to 210 test for lthe occurrence of A, C or E in either of the products ACE times C, or ACE times A.

The second digit of the quotient is then taken (marked as 'b'). All possible values are tested in the FOR/NEXT loop at line 220, and the product of 'b' times ACE is taken and a test is made to determine if the middle two digits correspond to A and C respectively. Finally, the product of 'd' times ACE is tested to see if digit C is found at second position.

```
              2 5 C 2 A
    ACE | 1 9 0 1 9 3 9 6
          1 C 9 6
            C 0 5 9
            3 A C 0
              3 1 9 3
              2 9 9 2
                2 0 1 9
WHERE           1 C 9 6
A=7               5 2 3 6
C=4               5 2 3 6
E=8               0 0 0 0
```

Any sets of values which pass all of these tests are printed out. This results in a value of 748 for ACE, 5 for 'b', and either 2 or 6 for 'd'. A quick check will eliminate the 6, giving the unique result printed above.

THE LISTING

```
100 FOR A=3 TO 9
110 FOR C=2 TO 9
120 IF C=A THEN 340
130 FOR E=0 TO 9
140 IF E=C OR E=A THEN 330
150 ACE=A*100+C*10+E
160 P=ACE*C:P$=STR$(P):IF P<1000 THEN
330
170
X=INSTR(P$,STR$(A)):Y=INSTR(P$,STR$(C)):
Z=INSTR(P$,STR$(E))
180 IF X>0 OR Y>0 OR Z>0 THEN 330
190 P=ACE*A:P$=STR$(P):IF P<1000 THEN
330
200
X=INSTR(P$,STR$(A)):Y=INSTR(P$,STR$(C)):
Z=INSTR(P$,STR$(E))
210 IF X>0 OR Y>0 OR Z>0 THEN 330
220 FOR B=2 TO 9
230 IF B=A OR B=C OR B=E THEN 320
240 P=ACE*B:P$=STR$(P):IF P<1000 THEN
320
250 IF VAL(MID$(P$,2,1))<>A OR
VAL(MID$(P$,3,1))<>C THEN 320
260 FOR D=2 TO 9
270 IF D=A OR D=B OR D=C OR D=E THEN
310
280 P=ACE*D:P$=STR$(P):IF P<1000 THEN
310
290 IF VAL(MID$(P$,2,1))<>C THEN 310
300 PRINT ACE,B,D
310 NEXT D
320 NEXT B
330 NEXT E
340 NEXT C
350 NEXT A
```

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A DEPARTING EDITOR'S VIEW OF ACE MAGAZINE...

Sad, but true. Steve Cooke is leaving the ACE Team this month for pastures new. We asked him for ten things he'll remember most about the last year:

THE GOOD

OIDS

One of the few games in the ACE office that I never played. Why? Simple – I knew that if I started, I'd never finish...

NEBULUS

Just when everyone starts thinking that an original arcade game is a contradiction in terms, along comes John Phillip's masterpiece. Sooper...

ULTIMA V

I should never have started this one. After nearly 60 hours I'm still playing it – but the end is in sight!

THE BAD

MASTERS OF THE UNIVERSE

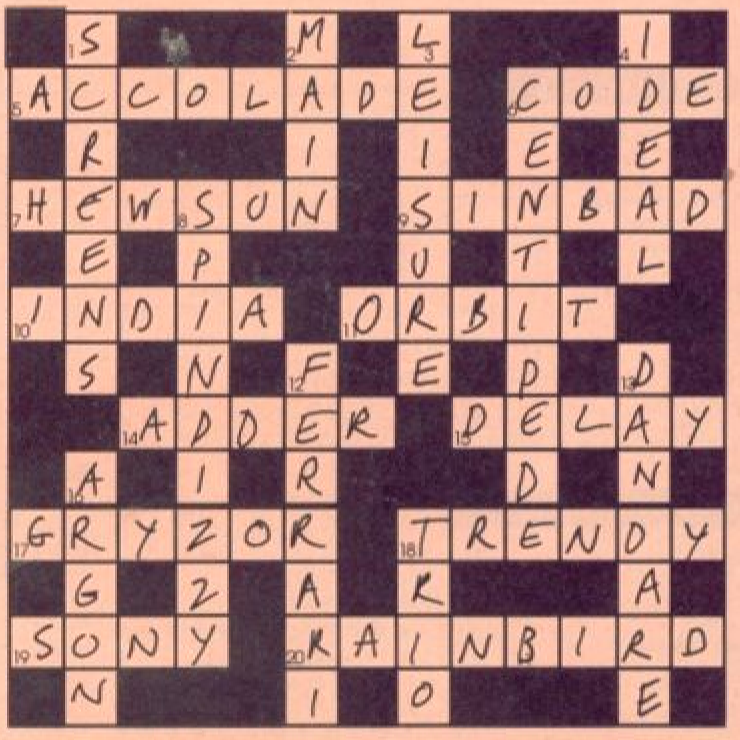
Thank heavens Gremlin's titles have improved since this all-time low. But perhaps it's unfair to single them out – there are several other well-known companies still producing rubbish. The only consolation is that they can't get away with it forever...Your votes will count, brothers and sisters!

THE UGLY

Bob Wade, Andy Smith, and Andy Wilton.

SOLUTION TO PRIZE CROSSWORD NO6

The first correct entry out of the postbag was **J.S. Gillard** of **Sheffield**, who wins £25 worth of software for his micro. This is what the completed crossword should have looked like...



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8 directional scrolling window shows detailed 3D maps (80 by 50 spaces) • One or two player options in each scenario with multiple difficulty levels for one player • Individual level combat with varied unit characteristics • Eight directional facing of units and hidden movement according to line of sight • Ranged combat includes aimed shots, snap shots, automatic fire, opportunity fire, grenades, thrown weapons and explosive ammunition • Strategic scanner shows detailed plan of entire map area • User friendly joystick or keyboard controlled menu system • Units carry up to ten objects which can be dropped, picked up, thrown, used to open doors etc. • Weapons and equipment can be chosen from a wide variety before each game starts • Highly developed artificial intelligence for one player option • THREE scenarios provided with game • Expansion kits to follow.

Target Games will ensure that Laser Squad is fully supported with new expansion kits. Each expansion kit will contain two fully documented scenarios available by mail order for £3.95 (inc. p&p). The first expansion kit will be available in September 1988 for the Spectrum.

Mail order (Laser Squad, Spectrum 48k/128k): send cheque or postal order payable to 'Target Games Limited' for £9.95 (postage and packing included).

TARGET GAMES
19 The Rows
The High, Harlow
Essex, CM20 1BZ

THIS MONTH'S LISTS...

Look, we can't go on like this. Why doesn't someone out there send us in a list of their own? Here's a list of ten things we look for in a list:

1. It must have more than one entry.
2. It mustn't have more than twenty entries.
3. It must be in English.
4. It must be your own, original list.
5. It must be accompanied by your name and address.
6. It must be decent, honest, and truthful.
7. It must be legal.
8. It must be legible.
9. It must be on paper.
10. It must be sent to ACE Lists, 4 Queen Street, BATH, BA1 1EJ.

FIVE GOOD REASONS FOR BUYING A TANDY 102 PORTABLE

1 - They don't often lose all your work.
2 - They have a hefty 20K of user RAM (expandable to a massive 28K).
3 - They only occasionally snarl your wrods up.
4 - Their screen is almost large enough for *Daleks*.
5 - They only cost £50 more than an ST.

TEN FAVOURITE BOOKS AROUND THE ACE OFFICE

1 - Roses Are Dead (Loren D Estleman)
2 - The Little Sister (Raymond Chandler)
3 - Point Blank (Richard Stark)
4 - The Rare Coin Score (Stark again)
5 - Lady Yesterday (Estleman again)
6 - Glass Highway (another Estleman)
7 - Invasion of the Space Invaders (Martin Amis)
8 - Teach Yourself Norwegian (Ingvald Marm & Alf Sommerfelt)
9 - Every Brilliant Eye (yet another Estleman)
10 - The Friends of Eddie Coyle (George V Higgins)

Also 'bubbling under' were Another Load of If (Steve Bell), the *Ultima V* manual (Lord British), several other Richard Stark books and Acorn's ARM Assembler Manual. Steve Cooke also put in a strong vote for The Secret Garden.

TOP 5 PHRASES HEARD AT THE PC SHOW

1. Where's the bar?
2. Where's the toilet?
3. Are you producing *Afterburner* for the ZX81?
4. No, you can't have a free *Stringfellows* T-shirt.
5. Never again.

THE 10 MOST LIKELY PLACES TO FIND A MEMBER OF THE ACE TEAM AFTER OFFICE HOURS.

1. In the Pub next door (Hatchetts).
2. In the Pub down the road (The Crystal Palace).
3. In Schwartz Bros hamburger emporium.
4. In the Seafoods Fish Restaurant.
5. In Players nightclub.
6. Round at Ange's (Ange being ACE's assistant art editor).
7. In Waterstone's late night book store (buying Loren D Estleman books).
8. At a cash dispenser.
9. Shopping in Sainsbury's.
10. At home (a bit of a long shot, this one).

TELEPHONE:
0782 281544

THE MAIN EVENT

DEPT ACE
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Hanley, Stoke -on -Trent

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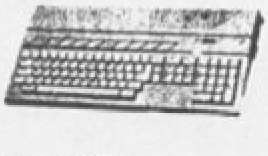

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Joan Pancott. Telephone 0305 784155 – Any Day – Noon to 10pm.
• For technical help on Commodore 64 Basic and Machine/Assembler language. Please contact Johnathan Kendall (for most problems would you please write!) I will endeavour to reply to all letters – if you enclose a stamped addressed envelope!
Johnathan Kendall, 27 Bishop Bridge Road, Norwich, Norfolk, NR1 4ES.
Tel: 0603 625987

The Pawn, Sorceror, Planetfall, Leather Goddess of Phobos, Hitchhikers Guide to the Galaxy
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The Pawn plus early stages for Guild of Thieves (I've only scored 300+ points so far).
Clive, 66 Billett Lane, Berkhamsted, Herts, HP4 1DR.
Jack The Ripper (p1-3), Dracule (p1-3), Hampstead, Big Sleeze and others.
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Tel: (091) 4875639

The Colour of Magic Part 1 and some of Part 2.
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Zork 1, 2, 3, Enchanter, Stationfall, The Pawn (most of), Plundered Hearts, Wishbringer, Shadowgate.
Julian Loveday, 23 Herbert Road, Emerson Park, Hornchurch, Essex, RM11 3LH. Tel: 04024 76738 Sun-Fri 6-9pm.

Adventure Land, Colossal Adventure, Circus, Colditz, Greedy Gulch, Jewels of Babylon, Knights Quest, Magic Mountain, Pharaoh's Tomb, Eye of Bain, Planet of Death, Ship of Doom, Espionage Island, Hobbit, Invincible Island, Inca Curse, Ten Little Indians, Persevs and Andromeda, Lords of Time, SAE required with all requests for help.
Nirmal Singh, 104 Vansittart Road, London, E7 0AA.

Colossal Cave (original adventure), Guild of Thieves, Leather Goddesses of Phobos, The Pawn, Jinxter.
Clive J Mewse, 66 Billet Lane, Berkhamstead, Herts, HP4 1DR.

All aspects of BASIC especially adventures, debugging, compression and protection, simple machine code including RSXS, playtesting, poking. Please state level of understanding. Have got a CPC464, GT64, Multiface II+, DK 'tronics Speech rom. General Amstrad queries welcome but solutions not guaranteed.
Sean McManus, 226 Chertsey Rise, Stevenage, Herts. SG2 9JQ.

The Pawn and Knight Orc (part 1 and early part 2).
Shazad Ahmed, Tel: 01-340 9176 (4-10pm).

Bard's Tale I & II, Ultima IV, Phantasie 1, Gnome Ranger, Mindshadow.
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THE BLITTER END...

IT'S MY OOPS!, DOCTOR...

For a magazine that normally has more boo-boos than Jellystone National Park, ACE was remarkably low on mistakes last month – especially considering it was Issue 13. In fact the only one we could find (or that we'll admit to at any rate) was page 116's fascinating howler, which read as follows:

'...you could count the number of commercially released games for it on the fingers of one hand. Since its launch over a year ago now the Archimedes has spawned just eight titles...'

Interesting stuff indeed. Does Arthur King have a little something extra in the finger department, we ask? Is Andy Wilton a mutie? And more importantly, how do they manage for gloves?

Notice how Bond's boat has hit the riverbank without exploding: presumably this photo came from an early demo of the film, before they'd put the collision detection in.

A MATTER OF LIFE AND DEATH

Gliding deftly from one medical curiosity to another, we come to this remarkable photo of those wacky Trilogic people at work. Apparently they've just come up with a cartridge that tells you what's wrong with your C64. We find a Spectrum owner can do this job quite adequately, but that's not important right now. What we would like to know is (a) whether the cartridge can detect that your C64's been pulled apart by a couple of blokes in green gowns, and (b) how it would tell you if it did.

But Doctor, will it ever play Professional Violin Simulator again?

Meanwhile, over in Florida (aka the Orange State, Bob Wade's favourite place in the whole world), James Bond is having a few problems navigating. No wonder, with a guidance computer like that: 'Pay attention 007 – this may look like a normal Z88 but it actually has an Acorn ARM central processor, two nerve gas cannisters and an operating system that's bugged to blazes.' Presumably it's pretty hard to tell the difference between water and dry land on an LCD screen. We have much the same problem here at ACE, trying to play Domark's new Bond-based game *Live and Let Die* on our Tandy 102 portable computers. (It'd help if the game actually came in a Tandy version, of course.)

CHICKEN-BRAIN!

Issue 13 may have been relatively OOPSless, but Issue 12 was vintage stuff by anyone's standards. Blitter End fans will have sampled some of the finer foul-ups in last month's edited highlights, but those only covered mistakes inside the magazine. The very best OOPS! of all wasn't so much in the issue as stuck to the cover of it. Yes, we're talking about that wonderful freebie geometric puzzle designed to test ACE reader IQs.

The truth is, folks, there are in fact six ways of forming a perfect square from the pieces provided, as opposed to the two ways we claimed there were. Okay, so we don't count so good. Still, we did pretty well on the puzzle itself: Sally Meddings, the art department's answer to Albert Einstein, solved it in a breathtaking two minutes flat, and almost everyone else in the office managed a rating of at least 'Pretty smart'.

The exception to this fine showing was – well, he'd best remain nameless. Suffice it to say that the puzzle identified his 'ACE staff writer potential' with uncanny accuracy.

GLOBETROTTER

With the PC Show over, what's to look forward to? Well, in Paris there's the Festival De Micro and ACE and IMAGEWORKS got together to offer a lucky reader the chance to be VIP guests of French software house Ubi Soft at the prestigious show. The lucky winner was Mr D. Tumman of Woodstock in Oxford who will soon be winging his way across the channel for a glorious (and FREE) weekend with a friend.

Colin Thompson of Stamford, John Hickey of Athey in Co Kildare, Ireland, Douglas Richardson of Uphall Station in Scotland, Trebor McKellar of Manchester and Matthew Tribble of Gravenhurst were the runners up and will each receive an Imageworks goody bag containing a sports bag, watch, T-shirt, pens and notepads.

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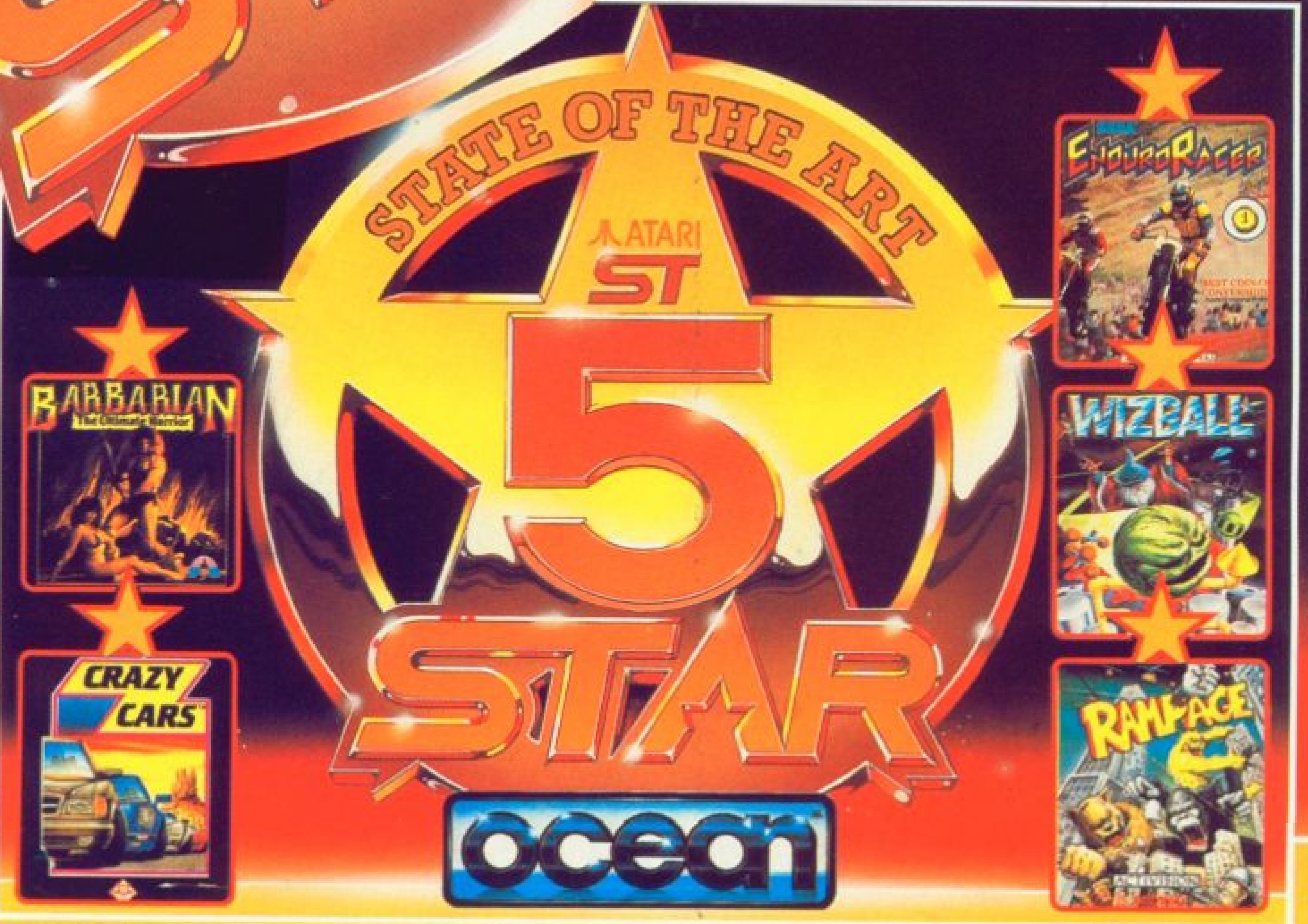

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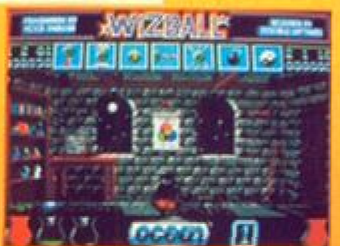

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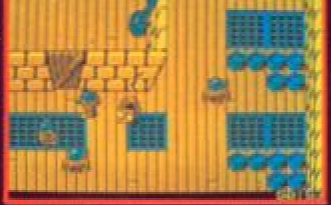

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